

JPRS-TEN-92-023
30 December 1992



**FOREIGN
BROADCAST
INFORMATION
SERVICE**

JPRS Report

Environmental Issues

Environmental Issues

JPRS-TEN-92-023

CONTENTS

30 December 1992

INTERNATIONAL

Rules Adopted Against 'Flag-of-Convenience' Tuna Fishing [Tokyo KYODO 16 Nov]	1
Montreal Signatories Agree To Ban Ozone-Depleting Materials	1
1995 Halt to Trichloromethane [Tokyo KYODO 18 Nov]	1
1994 Curb on Methyl Bromide [Tokyo KYODO 25 Nov]	1
International Tropical Timber Meeting Held in Yokohama	2
Draft Accord Stresses Environmental Conservation [Tokyo KYODO 21 Nov]	2
Delegates Fail To Reach Compromise on Draft Accord [Tokyo KYODO 24 Nov]	2
Interparliamentary Group Approves 'Green Tax' [Brasilia Radio 27 Nov]	2
GEF To Allow Developing Nations To Join Decision-Making [Tokyo KYODO 27 Nov]	3

AFRICA

GHANA

New Environmental Newspaper Launched [Accra Radio 20 Nov]	4
---	---

SOUTH AFRICA

Country To Participate in Ozone Research Project	4
Safari 92 Project [ENGINEERING NEWS 9 Oct]	4
NASA Flying Lab To Provide Data [ENGINEERING NEWS 16 Oct]	5
Rehabilitation of Asbestos-Polluted Areas Underway [SAPA 23 Nov]	5
Government To Ban CFCs From January 1996 [SAPA 1 Dec]	6

CHINA

Project Would Transfer Water From South to North [XINHUA 19 Nov]	7
Survey on Nationwide Erosion Problem Completed [XINHUA 19 Nov]	7
More Water Control Projects on Yellow River Planned [XINHUA 21 Nov]	7
Steps To Protect Ozone Layer Planned [XINHUA 23 Nov]	7
PRC Delegate Addresses International Conference on Environment [XINHUA 24 Nov]	8
Government Seeks International Environmental Help [XINHUA 24 Nov]	8
State Plans To Step Up Ecological Protection [CHINA DAILY 25 Nov]	8
Li Peng Says Environmental Protection 'Fundamental' Policy [XINHUA 25 Nov]	9
State To Issue Rules on Controlling Pollution [XINHUA 28 Nov]	9

EAST ASIA

REGIONAL AFFAIRS

Seminar Views Impact of Climate Change on Southeast Asia [Hanoi VNA 17 Nov]	10
---	----

AUSTRALIA

Indonesian Plan for Nuclear Plant Causing Concern [Melbourne Radio 17 Nov]	10
--	----

FIJI

Australia Provides Climate Change Monitoring Stations [Melbourne Radio 19 Nov]	10
--	----

JAPAN

Ministry Reconsiders Plans for Shipping, Using Plutonium [Tokyo TV 15 Nov]	10
Foreign Ministry Announces Nuclear Energy Talks With Russia [KYODO 16 Nov]	11
Fisheries Agency Plans Pacific Mammal Protection Organization [KYODO 17 Nov]	11
NEC Firm Develops Efficient Plastic Recycling Technology [KYODO 17 Nov]	11
Researchers To Present Method for Decomposing TCE [KYODO 18 Nov]	11
Environment Agency Issues Report on Water Quality [KYODO 20 Nov]	12
MITI Panels Urge Balance Between Environment, Economy [KYODO 25 Nov]	12
Tokyo, Beijing To Start Environment-Friendly Coal Study [KYODO 25 Nov]	13

SOUTH KOREA

Consumer Group Says Banned U.S. Pesticides Sold in Korea [YONHAP 11 Nov]	13
Korean Elected International Climate Change Panel Co-Chair [YONHAP 17 Nov]	13
Ministry To Promote Environmental Exchanges With DPRK [YONHAP 1 Dec]	13

MALAYSIA

Official 'Concerned' Over Linkage of Trade, Environment [BERNAMA 16 Nov]	14
Minister Briefs Parliament on National Forest Area [BERNAMA 17 Nov]	14

TAIWAN

Taiwan Seeks Montreal Protocol Status	14
CFCs To Be Phased Out in 3 Years [CNA 14 Nov]	14
Official Explains Policy [CNA 28 Nov]	15
Premier Hao Orders Ban on Use of Powdered Rhino Horns [CNA 19 Nov]	15
British Group To Back Taipei's Endangered Species Efforts [CNA 19 Nov]	15

THAILAND

Military in Border Timber Trade With SRV, Cambodia [THE SUNDAY POST 15 Nov]	16
Thai Businessmen Blamed for Cambodia's Deforestation [THE SUNDAY POST 15 Nov]	16
Logging Operators Experience Problems With Cambodian Deals [THE SUNDAY POST 15 Nov]	19

EAST EUROPE

BULGARIA

Scientist Advocates Shutdown of Unsafe Kozloduy Reactors [DEMOKRATSIYA 11 Nov]	21
Radiation Expert Defends Kozloduy Nuclear Plant [KONTINENT 12 Nov]	21
Experts Study Contamination of Land Around Kozloduy Plant [BTA 17 Nov]	22
Minister Announces Reduction in Pollution [BTA 25 Nov]	22

CZECHOSLOVAKIA

Legal Specialist Views Danube Dispute With Hungary [Budapest BESZLO 14 Nov]	23
Gabcikovo Work Suspension Presents Flood Danger [CTK 23 Nov]	23
EC Gabcikovo Report 'Favorable' for CSFR [CTK 27 Nov]	24

HUNGARY

Danube Commission Passes Resolution on Bos Affair [MTI 17 Nov]	24
Foreign Minister Views Danube Dispute With Slovakia [Vienna PROFIL 23 Nov]	25
Environmental Damage Noted at Former Soviet Military Airport [MAGYAR HIRLAP 24 Nov] ...	26

POLAND

- Report Lists Ecological 'High Risk' Regions [TYGODNIK SOLIDARNOSC No 42, 16 Oct] 26
Ecological Damage Left by Departing Russian Forces Assessed [SLOWO POLSKIE 4 Nov] 27

YUGOSLAVIA

- UN Official 'Reasonably' Optimistic About Montenegro Dam Repairs [AFP 1 Dec] 28

LATIN AMERICA

REGIONAL AFFAIRS

- Four Countries To Protect Ecology in South Atlantic
[Buenos Aires NOTICIAS ARGENTINAS 12 Nov] 29

ARGENTINA

- Southern Cone Nuclear Policy Viewed [LA PRENSA 15 Nov] 29
Deep-Sea Fishing Agreement Signed With EEC [Buenos Aires 30 Nov] 30

BRAZIL

- Collor's Industrial Patent Bill Remains Pending in Congress
[O ESTADO DE SAO PAULO 15 Nov] 31
Reluctance To Ratify Environmental Agreements Criticized [Madrid EFE 23 Nov] 31
Conference To Urge U.S. Signing of Biodiversity Treaty [Brasilia Radio 25 Nov] 32

HONDURAS

- State Forestry Agency Blamed for Deforestation [EL HERALDO 22 Sep] 32
Yojoa Lake Suffers From Contamination, Deforestation [TIEMPO 12 Oct] 33

PARAGUAY

- Missing Radioactive Elements Cause Concern [NOTICIAS 16 Nov] 33
Argentina 'To Resolve' Pilcomayo River Issue [NOTICIAS 18 Nov] 34

NEAR EAST/SOUTH ASIA

REGIONAL AFFAIRS

- Expert Forecasts Increasing Arab World Water Shortages [London AL-HAYAH 17 Oct] 35

BANGLADESH

- Sending of Contaminated Fertilizers From U.S. Condemned [THE DAILY ITTEFAQ 15 Nov] 37
Experts Warn of Global Warming Threat to Country [Hong Kong AFP 16 Nov] 38

PAKISTAN

- Pakistan Joins Montreal Treaty on Ozone Protection [Islamabad Radio 29 Nov] 38

CENTRAL EURASIA

RUSSIA

- Russian Scientists Discuss Ecology in Islamic World [ITAR-TASS 20 Nov] 39
Delegation to Interparliamentary Meeting Urges End to Nuclear Tests [ITAR-TASS 27 Nov] 39
Yablokov Addresses CIS Ecological Journalism Forum [CHAS PIK No 44, 2 Nov] 39
Ecology Ministry Presents Draft Conversion Plan [ROSSIYSKIYE VESTI 6 Nov] 41

Danilov-Danilyan Says Ecological Situation 'Stabilized' [INTERFAX 27 Nov]	41
Documentary Examines Moscow CW Institute Controversy [Moscow TV 11 Nov]	42
Commission Finds No Grounds for Accusation Against CW Facility [ITAR-TASS 21 Nov]	42
Chuvash Republic Accepts On-Site CW Destruction [KOMSOMOLSKAYA PRAVDA 19 Nov]	43
Government Legal Consultant Provides Update on Chernobyl Legislation [RABOCHAYA TRIBUNA 3 Nov]	43
Russian Delegation in Japan To Discuss Nuclear Plant Safety [ITAR-TASS 16 Nov]	46
Ministry Admits Tver Nuclear Facilities' Design Flaws [ITAR-TASS 20 Nov]	46
New Type Nuclear Reactor Planned for 1997 [ITAR-TASS 20 Nov]	46
Journalists Acquire 'Radioactive Control Rods' in Murmansk [Moscow TV 19 Nov]	47
Chelyabinsk-65 Suffers 'Terrible Legacy' of Plutonium Production [NEW TIMES INTERNATIONAL No 32, Aug]	47
Caesium Contamination Detected in Penza [ROSSIYSKAYA GAZETA 12 Nov]	50
Altay Officials Resurrect Plans for Controversial Katunskaya GES [TRUD 4 Nov]	50
Greenpeace Voyage Into Kara Sea Detailed [KOMSOMOLSKAYA PRAVDA 31 Oct]	51
Ministry Holds News Conference on Spent Nuclear Fuel Problems [Russian TV 12 Nov]	54
Deputy Nuclear Power Minister on Disposal of Spent Nuclear Fuel [ITAR-TASS 12 Nov]	54
Navy Sees No Threat of Nuclear Pollution From Komsomolets [ITAR-TASS 24 Nov]	55
Norway Sees 'Little Threat' From Sunken Soviet Submarine [ITAR-TASS 25 Nov]	55
Murmansk Region Nuclear Waste Site Revealed [Moscow TV 21 Nov]	55
Poor Safety at Murmansk Nuclear Waste Facility Described [Moscow TV 20 Nov]	56
TV Airs Kola Nuclear Radiation Problems [Moscow TV 29 Nov]	56
Yablokov Interviewed on Nuclear Waste Issues [INTERFAX 27 Nov]	57
Committee Created To Retrieve Buried Nuclear Waste [ITAR-TASS 1 Dec]	57
Pollution Possible Cause of Astrakhan Mutant Pathogen [Moscow TV 13 Nov]	58
Residents of Russia's Far East Protest U.S. Company's Tree Felling [ITAR-TASS 27 Nov]	58

WESTERN REGION

Shushkevich Criticized for Backing Nuclear Power Plant Construction [Moscow KOMSOMOLSKAYA PRAVDA 19 Nov]	58
Ukraine's New Environment Minister Views Priorities [Kiev KYIVSKA PRAVDA 10 Nov]	60
Commentary Urges State Support for Aluminum Production [Kiev URYADOVYY KURYER 20 Nov]	61
Engineers Call for Justification of New Nuclear Units [Kiev KHRESHCHATYK 30 Oct]	61
Article Supports Putting Part of Chernobyl Back on Line [Kiev MOLOD UKRAYINY 5 Nov]	62
Ukraine's UN Delegate Expresses Concern Over Chernobyl Situation [Kiev Radio 24 Nov]	62
IAEA Specialists Declare Ukraine's Rovno Nuclear Plant Safe [Moscow INTERFAX 27 Nov]	62

CAUCASUS/CENTRAL ASIA

Government Considers Natural Resource Use, Pollution Fees [Yerevan AZG 18 Sep]	63
Environment Minister Assesses Armenia's Energy Crisis [Yerevan YERKIR 19 Sep]	64
Turkish Company Submits Proposals on Cleanup of Caspian Sea [Baku Radio 13 Nov]	65
Kyrgyzstan Issues Decree on Environmentally Clean Energy [Moscow INTERFAX 18 Nov]	66

BALTIC STATES

Estonia's Environment Minister on Sillamae Pollution [Tallinn RAHVA HAAL 12 Sep]	66
Estonia's Premier Sees Paldiski Nuclear Plant as 'Threat' [Helsinki Radio 16 Nov]	67
Estonian Ministry Warns Against Buying Goods From Russian Military [Tallinn ETA NEWS RELEASE 30 Nov]	67
Latvia Outlines Environmental Goals in UNCED Document [Tallinn THE BALTIC INDEPENDENT 16-22 Oct]	67
Estimates Given for Russian Army's Damage to Latvia's Ventpils Area [Moscow BALTFAX 27 Nov]	69
Baltic States Warned on Radioactive Contraband [Tallinn THE BALTIC INDEPENDENT 23-29 Oct]	69

WEST EUROPE

REGIONAL AFFAIRS

EC Approves Limits on Polluting Trucks Crossing Alps [AFP 27 Nov]	70
---	----

AUSTRIA

Chancellor Vranitzky Offers Help in Temelin Power Plant Evaluation [DER STANDARD 17 Nov]	70
---	----

FRANCE

CEA Opens Pilot Nuclear Waste Furnace [AFP SCIENCES 24 Sep]	70
Plan To Recycle Automobiles Discussed [INDUSTRIES ET TECHNIQUES 11 Sep]	71
PSA To Market Two Electric Cars [AFP SCIENCES 1 Oct]	73

GERMANY

CFC Substitutes Used in Environmentally Friendly Refrigerator [VDI NACHRICHTEN 4 Sep]	73
Alternative Solar Cell Materials Studied [DIE WELT 10 Oct]	75
Bavarian Trade Ministry Funds Thermoelectric Converter [TECHNOLOGIE-NACHRICHTEN MANAGEMENT-INFORMATIONEN 12 Oct]	75
Electric Vehicles To Undergo Field Trials on Ruegen Island [DIE WELT 5 Oct]	76
Toepfer Plans Plutonium Transport to Scotland [DER SPIEGEL 16 Nov]	76
Experts Note 'Insoluble' Problems in Military Conversion [DIE WELT 19 Nov]	78
Toepfer Claims 'Nine or Ten' Seizures of Nuclear Material [ZDF 22 Nov]	78
Police Arrest Uranium Smuggler, Unable To Find Contraband [AFP 24 Nov]	79

NETHERLANDS

Environmental Impact of Electric Car Assessed [POLYTECHNISCH WEEKBLAD 24 Sep]	79
---	----

SWEDEN

Stockholm Buses Using Hybrid Gasoline-Electric Engines [NY TEKNIK 24 Sep]	81
ABB Develops Environment-Compatible Solid-Fuel Firing System [UMWELTMAGAZIN No 10, Oct]	81
Acid Rain Seen as Main Factor in Epidemic Elk Deaths [SVENSKA DAGBLADET 6 Oct]	82
Large Cities Cut Sulfur Dioxide Emissions [SVENSKA DAGBLADET 6 Oct]	82
Fresh Influx of Straits Water Aiding Baltic [DAGENS NYHETER 10 Oct]	83
New Pesticides Law Seen Having Wide Impact [DAGENS NYHETER 11 Oct]	83
Ministry Preparing Comprehensive Recycling Law [DAGENS NYHETER 11 Oct]	84

UNITED KINGDOM

Pollution Risk Halts Work on Nuclear Waste Plant [THE DAILY TELEGRAPH 24 Oct]	86
Coal Pollution Helping Beat Global Warming [THE SUNDAY TELEGRAPH 25 Oct]	87

Rules Adopted Against 'Flag-of-Convenience' Tuna Fishing

OW1611080592 Tokyo KYODO in English 0747 GMT 16 Nov 92

[Text] Tokyo, Nov. 16 (KYODO)—Twenty-two nations have agreed to introduce rules in September next year to curb fishing for bluefin tuna by flag-of-convenience vessels in the Atlantic Ocean, the fisheries agency said Monday [16 November]. The accord, reached at a meeting of the International Commission for Conservation of Atlantic Tunas (ICCAT) last week in Madrid, calls for identifying areas where bluefin tuna are caught, agency officials said.

The fishing restrictions, proposed jointly by Japan, the United States, and Canada, take aim at fishing companies in ICCAT member nations registering their boats in Honduras, Panama, and other nonmember nations to thwart ICCAT rules. Agency officials said they expect the new regulations to virtually halt exports of bluefin tuna from Honduras and Panama to Japan as the two nations agree to cooperate in introducing the new rules. Honduras and Panama export bluefin tuna mainly to Japan, where it is a top-of-the-range sushi item.

The ICCAT has set a limit of total catches of the species in the Western Atlantic at 4,788 tons for 1992 and 1993. In the Eastern Atlantic it has agreed to maintain the 1975 catch level.

Montreal Signatories Agree To Ban Ozone-Depleting Materials

1995 Halt to Trichloromethane

OW1811135092 Tokyo KYODO in English 0926 GMT 18 Nov 92

[Text] Tokyo, Nov. 18 (KYODO)—Signatories to the 1987 International Treaty on Ozone Layer Protection agreed in principle to ban the production and use of another ozone-depleting material, Japanese Environment Agency officials said Wednesday.

Eighty signatories to the Montreal Protocol agreed to put a halt in 1995 to the manufacturing and use of 1,1,1-trichloromethane, a substance used in the cleansing of metal parts, the officials said.

The agreement came in a working-level meeting in Copenhagen on Tuesday, the fourth such gathering since 1987, the officials said.

The ban was proposed by Mostafa Tolba, executive director of the United Nations Environment Program (UNEP), who called for outlawing the substance by the end of 1995, they said.

The accord will speed up the process of regulating trichloromethane, whose abolition was initially expected to take effect by 2004, they said.

Tolba also proposed a total ban on the production and consumption of chlorofluorocarbons (CFCs) by 1995, the officials said.

Another UNEP proposal called for phasing out the production and use of hydrofluorocarbons (HFCs), an alternative to CFCs, by 2020 after placing a ceiling on their consumption, starting in 1996, they said.

Some signatories, however, raised objections to the UNEP-proposed timing of the CFCs ban and another proposal to ban HFCs, they said.

1994 Curb on Methyl Bromide

OW2511040592 Tokyo KYODO in English 0308 GMT 25 Nov 92

[Text] Copenhagen, Nov. 24 (KYODO)—Signatories to the 1987 International Treaty on Ozone Layer Protection agreed Tuesday to hold down to 1991 levels the output of a globally used pesticide suspected of depleting the ozone layer, Japanese officials said.

The 80 signatories to the Montreal Protocol agreed to place the new curb on the pesticide methyl bromide by 1994 at a meeting of their cabinet minister-level representatives, the officials said.

The representatives failed, however, to iron out differences over a proposal from Mostafa Tolba, executive director of the UN Environment Program (UNEP), to slash production of the pesticide by 25 percent by the end of this century, they said.

Israel, an exporter of citrus, and some developing countries rejected the proposal, saying the opponents of the substance failed to produce convincing scientific data verifying that it can destroy the ozone layer, they said.

These critics of the proposed curb also confronted the United States, Japan and other developed nations, asserting such new regulation would place a damper on their agricultural production.

Following the debate, the conference attendants struck a compromise deal that called for sketching out a non-binding regulatory figure after conducting scientific appraisal of the ozone-depleting effects of methyl bromide, they said.

Methyl bromide gas is believed to deplete the ozone layer after it ascends in the air and reaches the stratosphere, where the gas tends to break up chemically, emitting harmful bromide.

Tokyo University Prof. Yoshihiro Makide told KYODO NEWS SERVICE that although methyl bromide can deplete ozone, there is a lack of scientific data that the density of the substance in the air has increased as the result of its industrial production.

The professor also noted that the oceans naturally produce abundant amounts of methyl bromide.

International Tropical Timber Meeting Held in Yokohama

Draft Accord Stresses Environmental Conservation

OW2111104192 Tokyo KYODO in English 1009 GMT 21 Nov 92

[Text] Tokyo, Nov. 21 (KYODO)—The new International Tropical Timber Agreement (ITTA) puts importance on environmental preservation rather than on controlled trade of tropical timber, according to a draft KYODO NEWS SERVICE obtained Saturday [21 November].

The draft report was compiled by the chairman of an informal working group on renegotiation of the ITTA, which took effect in 1984 and expires in March 1994.

The accord, aimed at proper development and management of tropical timber, is signed by 37 timber producing nations, including Indonesia and Malaysia, and 33 consuming countries including the United States.

The report proposes mentioning in the preamble of the accord the agreements reached at the U.N. Conference on the Environment and Development in June 1992 and "in particular the Rio de Janeiro Declaration on Environment and Development—the nonlegally binding and authoritative statement on principles for a global consensus on the management, conservation and sustainable development of all types of forests."

It also proposes moving up a paragraph on the objectives which said it is "to encourage the development of national policies aimed at sustainable utilization and conservation of tropical forests and their genetic resources and at maintaining the ecological balance in the regions concerned."

The paragraph was previously listed in the last of eight objectives.

Members of the International Tropical Timber Organization (ITTO), a Yokohama-based organization of 47 timber producing and consuming countries, is to discuss the draft in its meeting to be held Monday and Tuesday in Yokohama.

The draft suggests that the International Tropical Timber Council, "in the light of changing circumstances affecting the international trade in tropical timber," undertake and encourage members to "apply relevant policy and non-project work in the development of national policies and project proposals."

Delegates Fail To Reach Compromise on Draft Accord

OW2411115192 Tokyo KYODO in English 1130 GMT 24 Nov 92

[Text] Tokyo, Nov. 24 (KYODO)—Conservationists said Tuesday that member countries of a world tropical timber body meeting in Yokohama failed to renegotiate an accord because consumer nations do not want its restrictions imposed on trade in temperate timbers.

A preparatory committee of International Tropical Timber Organization (ITTO) members that met in Yokohama on November 11-13 and again on November 23-24 failed to reach a compromise over a new draft of the agreement, which expires in 1993.

But delegates agreed Tuesday to hold a further meeting in Quito, Ecuador, from January 22-30 in a further attempt to resolve the impasse over the International Tropical Timber Agreement.

Francis Sullivan, a forests conservation officer with the World Wide Fund for Nature and an observer at the conference, said Malaysian and Brazilian delegates led producer countries in an unsuccessful attempt to persuade consumer nations to apply the same regulations to temperate forest products.

Sullivan said many producer country delegates attempted to dissuade their tropical timber producer counterparts from supporting the concept of a wider timber organization with the suggestion it would ignore their minority interests.

Simon Counsell, a rain forest campaigner with the Friends of the Earth, said despite the impasse, the meeting achieved a breakthrough with recognition on the part of developing countries that they have "a basis for calling for equity with the developed world."

"Unless there is a truly global treaty regulating the timber trade, they (developing countries) can never expect the kinds of benefits they want to get from timber markets," Counsell said.

One option considered and rejected by delegates to the Yokohama meeting was immediate agreement to temporarily continue with the current accord until a compromise is reached.

Interparliamentary Group Approves 'Green Tax'

PY2811020492 Brasilia Voz do Brasil Network in Portuguese 2100 GMT 27 Nov 92

[Excerpts] The Interparliamentary Meeting on the Environment has approved the Letter of Brasilia suggesting the creation of a green tax on countries' gross domestic product (PIB verde). Legislators participating in the conference also approved a proposal repudiating the coup attempt in Venezuela.

The Venezuelan delegation did not participate in the ceremony closing the Interparliamentary Conference on Environment and Development. Legislators from more than 50 countries meeting since the beginning of the week in Brasilia showed their solidarity by approving a resolution repudiating the coup attempt in that country. The document characterizes the coup attempt as a disgraceful attack on world democracy. [passage omitted]

In the closing ceremony, legislators approved the Letter of Brasilia suggesting, among other things, the creation of a green gross domestic product, or green GDP. The green GDP is a tax on what a country destroys. The tax would be applied in cases of river or air pollution, destruction of

forests, or forest burning. The tax considers nature an asset, and all those withdrawing something from it are as responsible as if they were taking something from the GDP. Countries then would create a special account to defend the environment. In Brazil, for instance, the destruction of forests on the Atlantic coast, the Amazon region, or other jungles would be charged to the GDP, and the money thus obtained would be used to repair what was destroyed.

The Letter of Brasilia proposes that the Rio Declaration that was approved in June be transformed into an ecological constitution.

The Letter of Brasilia approved by the interparliamentary conference proposes that the Rio Declaration approved in June be sent to the United Nations to be transformed into an Earth Letter, a kind of ecological constitution that will be as important as the Declaration on Human Rights is today. The letter also proposes that the Treaty on Forests be transformed into a convention and that legislatures take the responsibility for approving the conventions on biodiversity and climatic change as soon as possible.

The Letter of Brasilia asks that reports on what is being done in each country to implement the results of the Rio Conference be submitted for consideration to the respective legislatures. [passage omitted]

GEF To Allow Developing Nations To Join Decision-Making

OW2711100692 Tokyo KYODO in English 0944 GMT 27 Nov 92

[Text] Tokyo, Nov. 27 (KYODO)—A World Bank-operated facility designed to financially assist developing nations in solving environmental problems is considering allowing such countries to participate in its decision-making, according to a draft reform plan revealed Friday.

The draft compiled by the secretariat of the Global Environment Facility (GEF) proposes holding general meetings to decide such things as the GEF's policies and the contents of the assistance programs, with the developing countries also participating.

In voting, majorities would be necessary from among a balanced number of selected industrialized and developing nations in order to approve a proposal, according to the draft.

However, a majority of the GEF core-fund member nation votes would also be needed to approve any proposal. Votes are allocated to the various nations according to the amount of their contribution and most of the core-fund nations are industrialized nations.

The draft will be discussed at a three-day GEF general membership meeting to be held from December 3 in Ivory Coast.

The GEF was established in 1991 to provide grants and technical assistance to developing countries in the areas of global warming, pollution of international waters, nature preservation, and protection of the ozone layer.

It is operated by the World Bank in conjunction with the United Nations Environment Program and the UN Development Program.

Thirty member nations are disbursing a total of 12.3 billion yen for the facility. Japan is the third largest donor, following France and Germany, with 1.5 billion dollars.

But developing countries and nongovernmental bodies have been voicing strong opposition to the industrialized nations-led operation of the facility.

They have been calling for the developing countries' participation in the body and clarification of the flow of GEF financing.

The GEF is to consider by the end of 1993 whether it will increase contributions to the facility by member nations and whether to provide loans to prevent desertification, a subject of concern to sub-Saharan countries.

GHANA

New Environmental Newspaper Launched

*AB2211150092 Accra Ghana Broadcasting Corporation
Radio Network in English 2000 GMT 20 Nov 92*

[Excerpt] An environmental newspaper, THE GREEN FORUM, was today launched in Accra. The eight-page quarterly is a collaborative effort between the government and Green Forum, a nongovernmental organization concerned with the environment. In an address read for her, the acting executive chairman of the Environmental Protection Council, Ms. Francesa Issaka, called for concerted efforts towards educating the public against reckless handling of the environment. [passage omitted]

SOUTH AFRICA

Country To Participate in Ozone Research Project**Safari 92 Project**

*93WN0111A Johannesburg ENGINEERING NEWS
in English 9 Oct 92 p 7*

[Article by Karen Sutton, staff writer of THE ENGINEERING NEWS: "A Burning Question"]

[Text] Safari 92 Launched

A global investigation is underway to determine whether biomass burning (veld fires) is as detrimental to the earth's atmosphere as fossil fuel burning.

The burning of fossil fuels reportedly alters the chemistry of the atmosphere by increasing the amounts of carbon dioxide into the troposphere, the layer closest to earth.

The carbon dioxide traps heat near the surface of the earth resulting in global warming.

And now it seems that emissions from veld fires may cause a similar "warming".

A few years ago the U.S.A.'s National Aeronautics and Space Administration (NASA) observed areas of ozone enrichment which coincided geographically with regions of elevated CO₂ concentrations.

High levels of the tropospheric ozone were discovered between South America and Africa; leading to the theory that biomass burning emissions and subsequent photochemical processes may play an important role in atmospheric chemistry over a large region of the earth.

An international project—the Southern Tropical Atlantic Regional Experiment (Stare)—was launched to investigate the emissions from biomass burning on both sides of the Atlantic, determine the transport of air masses and trace gases and to study the photochemical transformations that occur during transport.

A sub-programme, the Southern Africa Fire-Atmosphere Research Initiative (Safari '92), was launched to assess the relationship between fires and savanna ecology in southern Africa.

Co-chaired by Dr Janette Lindesay of the University of Witwatersrand, the project is a collaboration among southern African, European and North American scientists.

Says Lindesay: "Light from the sun travels through the atmosphere to the earth's surface and is absorbed by plants, the ocean or bare rocks.

"It is then transformed into long-wave heat radiation and returns to space as heat."

However, biomass burning results in increased concentrations of greenhouse gases in the troposphere such as methane, nitrous oxide and CO which also "close the atmospheric window" through which heat normally escapes, resulting ultimately in global warming.

"Alternatively, a cooling effect may also result as smoke particles from the fires cause increased reflection of sunlight back to space," reports Lindesay.

Other effects of biomass burning are being investigated such as the interaction between fires and the ecology of grasslands and savannas.

Veld Fire Detection

An early warning system using satellites to detect veld fires is being developed by Britain's Natural Resources Institute (NRI) in conjunction with institutions in Botswana, Namibia, South Africa, Zimbabwe and Europe.

This is one of several projects being investigated by Safari '92, the main objective of which is to research atmospheric effects of veld fires.

The NRI project will explore ways of collecting, calibrating/validating and disseminating satellite and ground information on fire risks and occurrences in different veld areas in southern Africa.

NRI's Dr Jim Williams explains that forestry departments often attempt to monitor fire risks but that it is difficult to do so only from the ground.

Satellites can monitor biomass build-up, its current state of dryness/wetness and broadcast information on the outbreak and real extent of fires.

This information can be received in-country and processed on low cost microcomputer-based receiver systems.

Williams says: "We will seek to establish and coordinate local satellite biomass estimations with ground validation and related observations as well as local fire risk assessments for different areas of vegetation."

He reports that NRI project personnel will take advantage of existing ground and satellite data sources (university, research, forestry departments, meteorology departments, wildlife departments) and supplement them with field activities where appropriate.

Special Gases Supplied

Special gases supplied by South Africa's Afrox are being used to calibrate scientific monitoring apparatus in the

Safari '92 project—to investigate the atmospheric effects of veld-fires in southern Africa.

Ian Wright of Afrox says that 32 cylinders were despatched to the Kruger National Park, 20 cylinders to Wonderboom Airport and 40 cylinders to a Namibian location.

Pure gases supplied include ultra high purity nitrogen, high purity argon, ultra high purity and electronic grade hydrogen, ultra high purity helium, chemically pure carbon monoxide, sulphur and hexafluoride.

Mixtures supplied include zero air, parts per million carbon monoxide, carbon dioxide/air mixture, parts per million nitric oxide/air mixture and parts per million sulphur hexafluoride/air mixture.

NASA Flying Lab To Provide Data

93WN0111D Johannesburg *ENGINEERING NEWS*
in English 16 Oct 92 pp 10-11

[Article by Karen Sutton, staff writer of *THE ENGINEERING NEWS*: "U.S. Space Administration Pays First Official Visit to SA in Decades—NASA's Flying Lab Touches Down at Jan Smuts Airport"]

[Text] The National Aeronautics and Space Administration's "flying laboratory" has landed at Jan Smuts airport in Johannesburg from Brazil with a crew of 43 people, including scientists and flight-staff.

The highly modified DC-8 aeroplane with its specialised scientific monitoring equipment is worth an estimated R141-million (US\$50-million).

It is in South Africa as part of the Trace-A project and will provide invaluable data for the research being carried out by the Southern African Fire-Atmosphere Research Initiative project (Safari '92) which is part of an international global investigation on tropospheric ozone.

Dr Jack Fishman of Nasa's Langley Research Centre will spearhead the mission which will make flights over the PWV area, northern Transvaal, Kruger National Park, Mozambique, Zimbabwe, Zambia and Botswana.

Official Visit

"It is Nasa's first official visit to South Africa since the 1960s, when it was involved with data tracking equipment at Hartebeespoort," says Dr Janette Lindesay of the Climatology Research Group of the University of Witwatersrand and co-chairperson of Safari '92.

She tells *THE ENGINEERING NEWS* that data from these investigations together with information collected during the Trace-A project in Brazil will be the first to provide concrete insights on the global impact of tropical biomass burning.

The ozone produced by biomass burning is found in the lower level of the atmosphere and is believed to contribute to the greenhouse effect.

She says it differs from the vitally important ozone in the stratosphere to which the "hole in the ozone" theory relates.

Some scientists believe that the emissions from biomass burning will have an effect on the earth's climatic balance, but whether this could lead to warming or cooling of the Earth is still speculative at this stage.

Emissions

Says Lindesay: "Investigations by Safari '92 will be completed by the end of October with initial results available by May next year.

"Hopefully it will increase our understanding of how fires behave, the chemistry of fires and how we can control and monitor them with remote sensing."

She adds that by using satellites—the state of the vegetation can be assessed as well as its vulnerability to fire.

"The level of expertise in South Africa has been upgraded through this project and it has opened a whole range of new technology, science and techniques to us," she reports.

Project

A spinoff of the project is a two-year scheme planned to be set up at Ulusaba at the Sabi Sands Reserve, west of the Kruger National Park.

It will include a weather station, ozone measuring device, rain chemistry monitor and an aerosol monitor.

"It will run for at least two years and enable scientists to get long-term records in the Lowveld with which we can assess the data we recorded on the Safari project," comments Lindesay.

Another project to be set up in the near future involves the monitoring of domestic burning in Gazankulu.

Rehabilitation of Asbestos-Polluted Areas Underway

MB2311151292 Johannesburg *SAPA* in English
1451 GMT 23 Nov 92

[Text] Pretoria, Nov 23 (SAPA)—About a quarter of South Africa's asbestos-polluted areas have been rehabilitated under a project co-ordinated by the Department of Mineral and Energy Affairs, a government statement revealed on Monday [23 November]. Asbestos fibre is mined mainly in the Northwestern Cape, Eastern Transvaal and Central/Northern Transvaal.

In the Central/Northern Transvaal—Bewaarkloof and Mafefe areas—all mining was called off and the rehabilitation of the old mining areas has been underway on a large scale. Because the damage to human health caused by the inhalation of asbestos fibre was not realised before, the fibre and mine waste was dumped indiscriminately in earlier years, said the statement. "The aim of the rehabilitation is, among other things, to prevent fibres from spreading by wind and water, as well as by uninformed people."

The method used to make polluted areas fibre free is to flatten the heaps and to cover them with clean gravel soil or to bury them completely. To prevent these "graves" from washing away, well-planned storm water management is applied. Self-sufficient plants are then planted on the rehabilitated heaps. The cost of the asbestos cleaning programme in Central/Northern Transvaal alone will amount to some R[and]16-million.

The project has also received several million rands from the strategic oil fund with the view to improving the socio-economic conditions in the Bewaarkloof and Mafefe areas and to promote the cleaning up of the polluted areas.

Government To Ban CFCs From January 1996

*MB0112073192 Johannesburg SAPA in English
0233 GMT 1 Dec 92*

[Text] Johannesburg, Nov. 30 (SAPA)—Chlorofluorocarbons (CFCs) which damage the world's ozone layer, will be banned in South Africa three years earlier than originally planned, South African Broadcasting Corporation radio news reported on Monday [30 November].

This means industries will have to substitute CFC's with ozone-friendly alternatives before January 1996.

The change-over will cost about R[and]200-million a year, according to Deputy Minister of Health Fanus Schoeman.

Project Would Transfer Water From South to North

*OW1911090292 Beijing XINHUA in English
0119 GMT 19 Nov 92*

[Text] Wuhan, November 19 (XINHUA)—The Chinese State Planning Commission is preparing a project to transfer water from south to north.

About nine-tenths of the rain in China falls in the south, and Chinese Government is going to build three channels to introduce water from the Yangtze River basin in the south to northern China, including the cities of Beijing and Tianjin.

A 1,241-km-long channel is to be dug from Danjiangkou Reservoir in the mountains between Henan and Hubei Provinces to Yuyuantan Lake in Beijing, passing along the west side of the north China plain.

Every year, 15 billion cu m of water will flow along the channel from the reservoir.

The funds for the project will be raised from cities and provinces benefiting from the channel.

The State Planning Commission sponsored a meeting in October this year at Danjiangkou, at which 63 officials and experts were present and passed the feasibility study for the project.

Survey on Nationwide Erosion Problem Completed

*OW1911090192 Beijing XINHUA in English
0226 GMT 19 Nov 92*

[Text] Beijing, November 19 (XINHUA)—China now has a total area of 3.67 million sq km of eroded soil, according to a recent national survey done by remote-sensing technology.

Of this area, 1.794 million sq km suffers from water erosion, and the other 1.876 million sq m suffers from wind erosion.

The survey, which began in 1984, was made based on satellite pictures as well as on-the-spot studies. It also included grading the seriousness of soil erosion in the country.

Since the founding of the People's Republic of China in 1949 the country has controlled a total eroded area of 530,000 sq km.

The survey was conducted by the National Agricultural Regional Planning Committee and the Ministry of Water Resources.

More Water Control Projects on Yellow River Planned

*OW2111101592 Beijing XINHUA in English
0818 GMT 21 Nov 92*

[Text] Yinchuan, November 21 (XINHUA)—China plans to build three more water control projects on the upper reaches of the Yellow River in the remaining years of this century in a bid to control effectively the silting problems on the lower reaches of the river.

The three new projects will be able to block 34 billion tons of silt from flowing into the lower reaches of the river, according to Zhang Jinong, vice-minister of water resources.

In addition, the vice-minister disclosed, three more hydropower stations will be built, bringing the number of hydropower stations on the river to ten and the total power generating capacity to 45 billion kwh each year.

The Yellow River is the second longest in China. It used to be called the "scourge of the Chinese nation" as it caused floods 1,590 times and changed course 26 times over the past 2,000 years.

Real efforts to tame the river did not start until New China was founded in 1949 when the central government spent more than ten billion yuan in building key water control projects. Now there are four key water control projects and more than 2,000 small and middle-sized reservoirs, with a storage capacity of 41 billion cubic meters, along the river. The four large hydropower stations have generated a total of 180 billion kwh. No major floods have ever occurred.

With the completion of the new projects by the end of this century 160,000 square kilometers of land will be saved from water loss and soil erosion, and the areas covered by grass and woodlands will rise to 210,000 square kilometers, occupying 33 percent of the whole river basin.

Steps To Protect Ozone Layer Planned

*OW2311140392 Beijing XINHUA in English
1229 GMT 23 Nov 92*

[Text] Copenhagen, November 23 (XINHUA)—China is not only concerned about protecting the ozone layer, but also is making preparations to help protect it, said a Chinese delegate at a meeting on ozone protection here today.

Speaking at the fourth minister-level meeting of signatory nations to the Montreal Ozone Protection Protocol which opened today, Chinese delegate Wang Yangzhu said that because China is the most populated country in the world, it is the number one victim of adverse effects of ozone destruction.

China participates in international efforts to protect the ozone layer, and also is a party to all international treaties concerning it, he said.

Meanwhile, under the auspices of a United Nations Environmental Program, China is carrying out such preliminary work as feasibility studies, technical and financial assessments for the first batch of investment and sample projects, he added.

Wang also spoke highly of efforts made by the international community to protect the ozone layer. The meeting is scheduled to close on Wednesday.

PRC Delegate Addresses International Conference on Environment

OW2411053492 Beijing XINHUA in English
0348 GMT 24 Nov 92

[Text] Brasilia, November 23 (XINHUA)—Funds and technology transfer were indispensable for international cooperation on the environment and development, a Chinese delegate to an international conference on the environment said here today.

"In the absence of such a guarantee, implementation of the declaration and program of action will be impossible," said Yang Jike, a member of the Standing Committee of the Chinese National People's Congress, at the International Parliamentary Union conference on the environment and development, which began today.

Yang praised the conference for promoting environmental awareness and giving an impetus to the deadlocked North-South dialogue of recent years.

However, he added, although the international community had reached a common awareness on environmental protection and human development, anticipated progress on some key issues was less than desired, especially on financial resources and technology transfer.

"Some developed countries," he said, "have not accepted the principles of providing 'new and additional funds' and transferring technology on preferential terms," that made the agreement and declaration on such issues impossible to implement.

Of China's policy and achievements in the field, Yang said the government and the people's congress had made environmental protection one of the basic state policies and incorporated it in national economic and social development strategies.

He said 12 laws on the protection and management of the environment and natural resources had been promulgated, and more than 20 administrative decrees and 200 standards had been issued.

Over the past decade or so, Yang said, China had maintained steady economic growth while averting corresponding degradation of the environment, and had even brought some local improvements to the environment.

All countries faced challenges to protect the environment, he said, but as long as members of the international community took UNCED (the United Nations Conference on the Environment and Development) as a foundation and new beginning and lived up to their obligations, it was possible to protect the global environment and expand the economy at the same time.

Government Seeks International Environmental Help

OW2411145592 Beijing XINHUA in English
1330 GMT 24 Nov 92

[Text] Beijing, November 24 (XINHUA)—China is actively seeking loans and financial help from World Bank and other international organizations in its battle against the country's environmental problems.

Currently China is negotiating with the World Bank and Asian Development Bank for loans totalling 948 million dollars for environmental protection projects.

According to Zhang Kunmin, deputy-director of the State Administration of Environmental Protection, China has so far obtained grants of 8.78 million dollars for eight environmental protection projects from World Bank, Asian Development Bank and the Global Environmental Foundation. China has also received 60 million dollars from the Global Environmental Foundation and 40 million dollars for the replacement of CFC's [chlorofluorocarbons].

"Since the U.N. Environment and Development Summit last summer, China has in cooperation with United Nations Development Program produced a state working plan for the protection of the ozone layer," Zhang told a national conference on environmental protection which opened today.

According to Zhang, China has joined the Basel Convention on the control of transborder shipments and disposal of hazardous wastes, the framework convention on climatic change and the convention on bio-diversity.

China has taken part in many bilateral and multi-lateral projects including the Northwest Pacific Action Plan, the global environmental monitoring system and regional cooperation in northeast Asia.

In its environmental cooperation with the West, Zhang noted that China has fostered very good relations with the United States, Finland, Japan, Germany, and Canada.

State Plans To Step Up Ecological Protection

HK2511030492 Beijing CHINA DAILY in English
25 Nov 92 p 1

[Report by staff reporter Wang Yonghong: "State Sets Goals for Ecological Protection"]

[Text] To help preserve a healthy environment during its fast economic development, China has decided to step up ecological protection with both legal and economic means, a top environmental official said.

"Now that the nation has set a very high economic growth rate for the coming years, it is imperative that pollution be controlled at a level as low as possible," Qu Geping, director-general of the National Environmental Protection Agency (NEPA), said at yesterday's opening session of a national conference on the environment held in Beijing.

While marked progress has been achieved this year on environmental protection, Qu said, it is still an arduous task to preserve a good environment because China will see more rapid industrial development in the coming years.

A growing population, rapid industrial development and urban expansion have made it necessary for China to take prompt measures to control air pollution and industrial waste, he said.

Economic means, including both fines and cash awards, have been proven effective in enforcing laws on environmental protection, Qu said.

The NEPA plan for next year, released at yesterday's meeting, sets out the construction of basic facilities for environmental protection and the prevention of industrial pollution as China's major tasks for 1993.

The plan emphasizes improving urban public utilities, considered one of the country's weak spots. Improvements should include: Drainage and sewage disposal; more centralized heating that cuts back on pollution; expanded production of cooking gas; treatment and utilization of wastes; control of smoke, dust and industrial and traffic noise; and many more anti-pollution projects.

The plan says projects to build new development zones and renovate old cities must take into account urban infrastructure for environmental protection.

Starting next year, restaurants and hotels will be charged for discharging pollutants, and industrial polluters will be fined accordingly.

Qu said governments at all levels and all enterprises must stress equally economic development and environmental protection and improvement.

"There is no way for any units, firms and individuals to profit at the expense of environment," he said.

According to the NEPA plan, all industrial projects that pollute because of improper design or outdated technology will be banned.

No foreign-invested project that might bring serious pollution will be allowed, Qu said.

"It is one of the efforts for China to implement the documents passed at the Global Summit earlier this year," he said.

In order to further carry out Global Summit resolutions, China will draft next year more national or local regulations on the prevention of radioactive pollution, the management of natural reserves, the environmental management of construction projects and environmental monitoring, Qu said.

But the laws and regulations should be suited to national and local conditions, he added.

Li Peng Says Environmental Protection 'Fundamental' Policy

*HK2511150792 Beijing XINHUA Domestic Service
in Chinese 0925 GMT 25 Nov 92*

[Report by XINHUA correspondent Sun Benyao (1327 2609 1031) and Tian Shanchuan (3944 1472 1557), Central People's Broadcasting Station correspondent]

[Text] Beijing, 25 Nov (XINHUA)—State Council Premier Li Peng said today in meeting with delegates for the national conference of the environmental protection bureau chiefs at Zhongnaihui Ziguangge [Purple Light Pavilion] that environmental protection is our country's fundamental state policy, and in the process of economic development, not only should our country's environment not be polluted or destroyed, it should be further improved.

During the national conference of the environmental protection bureau chiefs, leading comrades such as Premier Li

Peng, Vice Premier Tian Jiyun and State Councilor Chen Junsheng met warmly with conference delegates and congratulated them on the opening of the conference. In his address Li Peng said: Both the party and government attach great importance to environmental protection. In the 14th Party Congress report Comrade Jiang Zemin listed boosting environmental protection as one of the important tasks in the future, stressing that we must build material and spiritual civilizations, and need not only economic development but also a good working and living environment.

Li Peng said: China's environmental protection has its own characteristics; it is hoped that everyone can conscientiously handle this job well based on specific conditions in different localities.

In his address Li Peng commended the State Environmental Protection Bureau for doing a tremendous amount of work. He hoped that the broad mass of cadres and workers on the environmental protection front would continue to work hard to keep environmental protection in continual progress and to promote reform, opening up and the development of the national economy

State To Issue Rules on Controlling Pollution

*OW2811114292 Beijing XINHUA in English
0816 GMT 28 Nov 92*

[Text] Beijing, November 28 (XINHUA)—China plans to hammer out a package of regulations to protect the environment in rural areas.

Rural firms and industrial projects which use backward technology, simple and crude equipment, abuse natural resources, and have caused or likely to cause pollution, will be banned from production or forced to change their production methods.

"The rapid development of township enterprises has prompted governments to curb the worsening ecological conditions in the rural areas over the country," said officials at the national conference on environment protection.

With a marked average growth of more than 28 percent in the past ten years, constituting one fourth of the total production value of the national economy, China's rural industry is expected to chalk up a total output value of 1,500 billion yuan this year.

Some firms, such as asbestos producers, and coking and papermaking companies, are among the country's biggest polluters.

The Ministry of Agriculture and the National Environmental Protection Agency will map out the package of regulations next year.

Local authorities are also being asked to map out regulations and measures according to their local conditions.

The central government will support a number of demonstrative projects, including ten counties noted for their good environmental conditions and five to seven projects that have good pollution control measures, in the next three years.

REGIONAL AFFAIRS

Seminar Views Impact of Climate Change on Southeast Asia*BK1711143792 Hanoi VNA in English 1405 GMT 17 Nov 92*

[Text] Hanoi, Nov. 17 (VNA)—A regional seminar on climate change and its impacts on ecological environment in Southeast Asia was held here on Nov. 16-17 by the General Department of Meteorology and Hydrology with financial assistance from the World Meteorology Organization (WMO).

The seminar was attended by Vice Premier Nguyen Khanh, Professor Doctor Nguyen Duc Ngu, director of the General Department of the Meteorology and Hydrology, and others. Also present were representatives of the WMO, Environment Programme, the UNDP [UN Development Program], the director of the Environment Programme of the Climate Institute, the director of the National Center for Atmospheric Research, USA, the director of the Malaysian Meteorological Service, and the representative of the Polish Institute of Meteorology and Water Management.

The 23 scientific reports presented at the seminar focused on climate changes, greenhouse effect, impacts on the sea level, rational forest resources management and use, flood and storm preparedness, climate change and atmospheric environment in Vietnam, the influence of climate variation on rice growing, etc.

AUSTRALIA

Indonesian Plan for Nuclear Plant Causing Concern*BK1711073692 Melbourne Radio Australia in English 0300 GMT 17 Nov 92*

[Text] Environmentalists in northern Australia say the region will be in danger if Indonesia proceeds with plans to build nuclear reactors in Java.

Northern Territory Environment Center said earthquake activity near them could rupture reactors and cause a radiation accident comparable to Chernobyl—the world's worst civil nuclear disaster.

Australian ministers are in Jakarta this week to sign several agreements, including the Nuclear Cooperation Accord.

FIJI

Australia Provides Climate Change Monitoring Stations*BK1911071492 Melbourne Radio Australia in English 0500 GMT 19 Nov 92*

[Text] Fiji has become the first of twelve South Pacific nations to receive sophisticated climate change and sea level monitoring stations from Australia. The equipment is designed to give early warning of changes associated with the Greenhouse Effect.

South Pacific correspondent, Jemima Garrett, said the stations are part of the \$7 million project announced by Australia's former prime minister, Bob Hawke, at the 1989 South Pacific Forum in Kiribati.

[Begin Garrett recording] The monitoring stations will provide very accurate measurements of sea level and associated weather conditions to be instantly beamed back to the National Tidal Facility in Adelaide for analysis. There scientists will have to take into account a bewildering array of factors ranging from movements in the earth crust and the impact of El Nino phenomenon through to local conditions.

The director of the National Tidal Facility, Jeff Lennon, says it may be 20 years before a clear assessment of the impact of greenhouse changes can be made. In the meantime, he hopes to provide improved weather forecasts and tidal predictions.

The first station was installed at Lautoka Wharf on Fiji's main island. The rest are expected to be installed within the next few months. [end recording]

JAPAN

Ministry Reconsiders Plans for Shipping, Using Plutonium*OW1511121692 Tokyo NHK General Television Network in Japanese 1000 GMT 15 Nov 92*

[Text] The Foreign Ministry has begun to reconsider Japan's method of transporting plutonium from France, as well as its plans to use reprocessed plutonium, because it is becoming increasingly concerned over unexpected and mounting international criticism over the shipping of plutonium aboard the Akatsuki Maru.

The ship, which departed from the French port of Cherbourg on 7 November and is now headed for Japan, is carrying a cargo of one ton of plutonium to be used as fuel in nuclear reactors. Because the government plans to transport 30 tons of plutonium from overseas for use as fuel in domestic reactors, this seaborne transportation process must be repeated 29 more times.

Not only have coastal nations along the Akatsuki Maru's expected route voiced opposition to the ship's passage, but there have also been voices expressing concern that the plutonium shipments could provide Japan with an opportunity to develop nuclear weapons in the future. Moreover, if the new Clinton administration hammers out policies unfavorable to Japan's plutonium transport, there are concerns that the government may be forced to change its existing policy. Therefore, the government has begun to reconsider the project.

According to current plans, the government intends to procure 85 tons of plutonium by the year 2015, but recent recalculations by the Foreign Ministry indicate that such demand is unlikely, and, in turn, the ministry thinks it may be necessary to cut back on orders. Moreover, there have been recommendations to ship the plutonium by air instead of by sea because of the strong reaction against

seaborne transport from those coastal countries along the expected route. The Foreign Ministry plans to open concrete discussions on this matter with the Science and Technology Agency when the Akatsuki Maru completes its current mission.

Foreign Ministry Announces Nuclear Energy Talks With Russia

*OW1611072892 Tokyo KYODO in English
0710 GMT 16 Nov 92*

[Text] Tokyo, Nov. 16 (KYODO)—Japan and Russia will hold talks in Tokyo on November 24 to 27 to discuss issues relating to the production and harnessing of nuclear energy, the Foreign Ministry said Monday [16 November].

The Japanese delegation, consisting of officials from the Foreign Ministry, the Ministry of International Trade and Industry (MITI) and the Science and Technology Agency will address the promotion of further Japanese assistance to Russia for enhancement of safety measures, officials said. Russia will be represented by officials of its Foreign Ministry, Ministry of Atomic Energy and State Committee for the Supervision of Nuclear and Radiation Safety.

At the last such meeting in Moscow in October 1991, Japan offered to invite 1,000 Russian nuclear plant operators to Japan over a 10-year period for training in areas of Japanese expertise, such as safety. Officials said some 30 to 40 such trainees are being received during the current fiscal year which began in April.

Fisheries Agency Plans Pacific Mammal Protection Organization

*OW1711103892 Tokyo KYODO in English
0858 GMT 17 Nov 92*

[Text] Tokyo, Nov. 17 (KYODO)—The Fisheries Agency unveiled Tuesday [17 November] a plan to establish a Pacific-rim mammal protection organization patterned after the North Atlantic Marine Mammal Commission (NAMMCO) designed to preserve cetacean resources. Agency officials said Tokyo plans to discuss the plan with the United States during two-day bilateral fisheries talks opening in Tokyo Thursday.

NAMMCO was launched in September by Norway, Iceland, Greenland, and the Faroe Islands, which were opposed to a ban on commercial whaling imposed by the International Whaling Commission (IWC).

Japan plans to seek cooperation of Russia, South Korea, and other countries along the Pacific coast for the mammal protection plan, agency officials said. Japan and other whaling nations, such as Norway and Denmark, contend that small-size whales such as pilot whales and giant beaked whales, which are caught in coastal waters, should be excluded from regulations by the IWC.

The Fisheries Agency allowed Japanese whalers to catch a total of about 100 pilot and giant beaked whales last year. Japan is the only Pacific nation to haul such small-size mammals, the officials said. Washington is expected to

take a cautious attitude toward Japan's plan for fears of protests from environmental groups, the officials said.

NEC Firm Develops Efficient Plastic Recycling Technology

*OW1711132992 Tokyo KYODO in English
1053 GMT 17 Nov 92*

[Text] Tokyo, Nov. 17 (KYODO)—Major Japanese electronics firm NEC Corp. said Tuesday [17 November] it has developed a new technology that can recycle virtually 100 percent plastic waste produced in the manufacture of printed circuit boards. The company said the new technology uses a process to grind waste materials into molecules and remove copper for recycling. Glass fiber and epoxy resins extracted from waste materials can also be used in various production processes, the company said. The company said it plans to introduce the new system at its production facilities in the latter half of 1993.

Researchers To Present Method for Decomposing TCE

*OW1811132992 Tokyo KYODO in English
1024 GMT 18 Nov 92*

[Text] Fukuoka, Nov. 18 (KYODO)—Environmental researchers said Wednesday they have confirmed that certain strains of bacteria are effective in the decomposition of tetrachloroethylene (TCE) and believe their research will be helpful in controlling the pollution caused by the cleaning solvent.

TCE is an organic solvent used in cleaning solutions, but since it is believed to be carcinogenic and can obstruct liver functions, it has been designated a noxious substance in the Water Pollution Control Law.

Takashi Tokunaga, a specialist at Fukuoka Prefecture's Research Institute for Sanitation and the Environment, will present the results of the TCE studies on November 27 in Fukuoka at a symposium on environment conservation and pollution prevention.

In a 1990 survey, the Environment Agency discovered traces of TCE exceeding 0.01 milligram per liter in water from 79 out of 5,817 wells sampled.

Tokunaga and the other researchers collected samples of earth from within the prefecture that had been polluted with TCE and nurtured microscopic organisms which were included in the dirt in the laboratory.

TCE fluids were added to the multiplied bacteria and in an oxygen-free state the strength of the decomposition was observed.

Germs that had been discovered effective in previous experiments and three new types were tested for their effect in decomposing TCE.

The strongest of the microbes was a slender germ that changed a high concentration of 160 milligrams per liter of TCE into dichloroethylene (DCE) in three to four days.

DCE, as it is, is also considered a noxious substance, but can be more readily decomposed into methane and carbon dioxide.

Hiroshi Tokiwa, head of the research institute, said the DCE decomposition method is already in use in the United States and if TCE, which is difficult to decompose, can be reduced to DCE, it would be a major step for pollution countermeasures.

If large cultures of the effective germs can be nurtured, cleaning up TCE pollution might be achieved at a low cost, Tokiwa said.

Environment Agency Issues Report on Water Quality

*OW2011091592 Tokyo KYODO in English
0215 GMT 20 Nov 92*

[Text] Tokyo, Nov. 20 (KYODO)—Japan's lakes and swamps are still contaminated, but rivers and seas show improvement in their water quality, an Environment Agency report showed Friday.

The agency conducted a survey on water quality at 3,123 points across the country in fiscal 1991 that ended last March.

Results of the survey showed 75.4 percent of rivers achieved the standard designated by the agency, up 1.8 percentage points from the previous year. Sea water also showed improvement with 80.2 percent meeting the standard, up 2.6 points.

However, water quality in lakes and swamps has deteriorated for two years in a row, the report said, with only 42.3 percent clearing the standard, down 1.9 percent from fiscal 1990.

In terms of the pollution standards of biological oxygen standard (BOD) and chemical oxygen standard (COD), Tega-numa in Chiba Prefecture topped the list of badly contaminated swamps for the 18th year in a row, recording a COD of 16 parts per million (ppm), the same as Lake Harutori in Hokkaido.

Ibo River in Hyogo Prefecture was listed as the most polluted river, registering a BOD of 39 ppm.

Sea water conditions in Tokyo Bay, Ise Bay and Osaka Bay remain constant with the year before, and water quality in the inland sea has slightly improved.

Regulations of industrial discharge and the streamlining of sewage systems have contributed to the improvement of water quality generally, but those measures are not effective for lakes and swamps, the agency said.

Underground water in 40 of Japan's 47 prefectures were found to be contaminated by tetrachloroethylene, a carcinogenic chemical, and toxic trichloroethylene, the survey showed.

A survey on the pollution of underground water in fiscal 1991 found 44 of 6,158 wells tested for the first time

surpassed the set safety standard of 0.01 ppm of tetrachloroethylene, and 27 wells had a density of trichloroethylene above the 0.03 ppm standard.

Among the total 11,374 wells monitored for tetrachloroethylene, 884 exceeded the standard. Of the 11,286 wells tested for trichloroethylene, 404 were over the limit, the survey said.

No violations of well water standards were found in a total of seven prefectures, it said.

MITI Panels Urge Balance Between Environment, Economy

*OW2511075692 Tokyo KYODO in English
0712 GMT 25 Nov 92*

[Text] Tokyo, Nov. 25 (KYODO)—A 14-point proposal on ways to balance economic growth and efficient energy supply with protection of the environment was submitted to the Ministry of International Trade and Industry (MITI) by three advisory panels Wednesday.

The report said responses should be sought through voluntary initiatives rather than regulations. They also pointed to the difficulty of making up for a possible gap between the government's target for final energy consumption in the year 2000 and its estimate of what the consumption is likely to be.

It estimated that final energy consumption in 2000 will rise to the equivalent of between 420 million kiloliters and 430 million kiloliters of oil, against the target of 391 million kiloliters.

The estimate is based on the government's goal of stabilizing carbon dioxide emissions on a per capita basis by 2000 at about the same level as in 1990 and to seek average annual economic growth of about 3.5 percent in the coming five years.

Among the proposals are measures for efficient energy use and encouraging the supply of energy sources that do not use fossil fuels to revamp the energy supply-demand structure.

The report also said that businesses and consumers should be encouraged to avoid activities harmful to the environment, and called for initiatives on such matters by the national and local governments, as well as promotion of recycling to help protect the environment.

The report stressed the importance of technological development and international cooperation, but said the panels do not favor introducing taxes and surcharges to reduce carbon dioxide emissions, which it said could affect economic growth and spur inflation through rises in energy prices.

Rather than introducing taxes, it recommended promotion of such measures as low-interest loans and tax incentives for comprehensive efforts to deal with global warming.

The ministry will follow the proposals in drawing up its future policies on environmental protection and efficient energy supply, officials said.

The report, "Policy Triad for the Environment, Economy, and Energy," was compiled by the special committees on energy and environment under the Industrial Structural Council, the Advisory Committee for Energy, and the Industrial Technology Council.

Tokyo, Beijing To Start Environment-Friendly Coal Study

43070006A Tokyo KYODO in English 25 Nov 92

[Text] The New Energy and Industrial Technology Development Organization (NEDO) announced Wednesday that it will embark on a feasibility study with China to work out a scheme for environment-friendly uses of coal.

NEDO and China signed an agreement Wednesday on basic policies, including outlines of the study and role sharing, NEDO officials said. NEDO is affiliated with the Ministry of International Trade and Industry.

The joint study will be the first program overseas in line with the ministry's technology transfer project aimed at popularizing environment-friendly uses of coal all over the world, the officials said.

The agreement calls for Japan and China to study China's present uses of coal and the possibility of testing environmentally protective gears in coal-fueled thermal power plants from November 1992 through March 1995, they said.

They said 40 million yen is earmarked for the study during the current fiscal year, which ends next March, and 300 million yen for the next fiscal year.

SOUTH KOREA

Consumer Group Says Banned U.S. Pesticides Sold in Korea

SK1111064892 Seoul YONHAP in English
0619 GMT 11 Nov 92

[Text] Seoul, Nov. 11 (YONHAP)—U.S. manufacturers of agricultural chemicals are selling products in South Korea that are banned in the United States, a consumer watchdog group charged Wednesday.

The Citizens' Alliance for Consumer Protection of Korea (CACPK) was tipped off to the inflow of the chemicals by the Pesticide Action Network (PAN), a CACPK spokeswoman said.

PAN, formed in 1982, is an international organization that exchanges information on agricultural chemicals with 300 member organizations in 50 countries.

It recently obtained a report by the U.S. Senate Agriculture, Nutrition and Forestry Committee revealing that seven unregistered and proscribed pesticides, containing such toxins as dicofol and carbosulfan, were among the 3,000 tons of U.S. agricultural chemicals exported to Korea in 1990.

These chemicals that are banned in America are used to make 11 kinds of insecticides and herbicides in Korea and then sold to unsuspecting Korean farmers, the spokeswoman said.

Korean Elected International Climate Change Panel Co-Chair

SK1711081892 Seoul YONHAP in English
0634 GMT 17 Nov 92

[Text] Seoul, Nov. 17 (OANA-YONHAP)—A South Korean was recently elected to co-chair the Intergovernmental Panel on Climate Change's [IPCC] working group on policymaking, the Foreign Ministry said Tuesday.

Yi Hoe-song, director of the Korea Energy Economics Institute, was elected at the eighth IPCC conference in Zimbabwe on Nov. 9-13, the ministry said.

IPCC, established in November 1988, works with the World Meteorological Organization (WMO) and the U.N. Environment Program (UNEP) for protection of global climate.

The working groups were restructured at this month's meeting and are now technological evaluation, socioeconomic evaluation and policymaking, the ministry said.

Korea will represent developing nations in the working group while Canada will speak for advanced nations.

Ministry To Promote Environmental Exchanges With DPRK

SK0112095992 Seoul YONHAP in English
0738 GMT 1 Dec 92

[Text] Seoul, Dec. 1 (YONHAP)—Environment Minister Yi Chae-chang said Tuesday that his ministry would breathe new life into inter-Korean exchanges and cooperation for joint environmental preservation efforts.

Reporting on the progress of environmental policies to President No Tae-u, Yi said his ministry would actively promote joint ecological surveys with North Korea in the Demilitarized Zone.

Yi told No that environmental standards would be strengthened from year to year and that his ministry would give technological and financial support to the environmental industry.

Measures were needed to cope with the strict environmental regulations that U.S. President-elect Bill Clinton would impose when he took office, he said.

The ministry would draft a law early next year to mandate advance assessment of the impact of development projects on the environment, he said.

An environmental technology development institute would be set up this month and environment-friendly technologies would be actively induced from advanced countries or through joint ventures, Yi said.

He said he would take steps to enable all waste from Inchon to be buried in the Kimpo landfill this month and secure dump sites in Chonju and Chongju as soon as possible.

Growth in the amount of waste slid to 2.6 percent this year from 8.7 percent in 1988 owing to a recycling campaign, Yi said. The recycling rate jumped three-fold to 8.9 percent from 2.4 percent in 1988.

The environment improvement tax to be introduced in February will add 64.9 billion won to the state coffers next year, he said.

MALAYSIA

Official 'Concerned' Over Linkage of Trade, Environment

*BK1611115892 Kuala Lumpur BERNAMA in English
0931 GMT 16 Nov 92*

[Text] Kuala Lumpur, Nov. 16 (OANA-BERNAMA)—Malaysia is concerned over inter-linkages between trade and environmental issues under the General Agreement on Tariffs and Trade [GATT], as well as the current impasse in talks over agriculture subsidies.

International Trade and Industry Ministry Secretary General Asmat Kamaluddin said trade policy instruments were being used to support environmental objectives, based purely on ethical considerations or political pressures from domestic interest groups.

He described the use of unilateral trade measures as "a dangerous and negative precedent".

An even more dangerous precedent is the use of trade measures to restrict imports of a product, to impose a country's own environmental standards on a third country.

He was speaking when opening a four-day workshop on GATT at the Institute of Diplomacy and Foreign Relations Malaysia here. The workshop instructors are Mohamed Hamid and Raymond Krommenacker of the GATT Secretariat in Geneva.

Recently, Austria imposed a legislation eco-labelling tropical timber products while several Japan prefectures and German provinces have banned the use of tropical wood in buildings, raising the ire of Malaysia, a major wood exporter.

Asmat said a working group within GATT had been formed to address this issue, particularly to ensure trade liberalisation was not hampered by the unjustified use of trade measures for environment reasons.

He said the current deadlock in the eighth round of talks, the Uruguay Round, between the United States and the European Community over agriculture confronted the GATT with its greatest challenge since its birth in 1948.

The United States and EC are embroiled in heated discussions over U.S.'s demand that the EC terminate subsidies on oilseeds such as soybeans and sunflower seeds used for animal food and cooking oil.

A successful conclusion of the Uruguay Round talks, stalled for the past two years, would help maintain and further improve market access for Malaysian exports, he said.

Minister Briefs Parliament on National Forest Area

*BK1711102092 Kuala Lumpur BERNAMA in English
0848 GMT 17 Nov 92*

[Text] Kuala Lumpur, Nov. 17 (OANA-BERNAMA)—Malaysia still has 19.4 million hectares of forest of which about 72 percent or 14.1 million hectares are permanent forest reserve, the Dewan Rakyat (Lower House) was told Tuesday.

Deputy Primary Industries Minister Tengku Mahmud Mansor said that of the 14.1 million hectares permanent forest reserve, 11.2 million hectares were production forest, while 2.9 million hectares protected forest.

Of the 2.2 million hectares of Malay reserve land, 1.2 million hectares such as in Kelantan, Perak, and Perlis were still covered with forest.

He said that for Orang Asli (aborigines) reserve, 11,259.6 hectares were still covered with forest such as in Johor, Kelantan, and Perak while in Sarawak, communal forest covered 5,660 hectares.

Tengku Mahmud said the last National Forestry Council conference identified about 1.37 million hectares in peninsular Malaysia as water catchment area.

TAIWAN

Taiwan Seeks Montreal Protocol Status

CFCs To Be Phased Out in 3 Years

*OW1411093592 Taipei CNA in English
0745 GMT 14 Nov 92*

[Text] Taipei, Nov. 14 (CNA)—The Ministry of Economic Affairs has ruled to phase out the use of chlorofluorocarbons (CFCs) in the next three years, synchronizing the environmental protection effort with a global action.

A source of the ministry said that Taiwan is trying to win the equivalent treatment of a contracting party, since the chance is slim for the Republic of China [ROC] to be admitted as a contracting party at the Assembly of Montreal Protocol to be held in Denmark on Nov. 17.

The Industrial Development Bureau is coordinating with the industry to implement one project. In addition to assistance to the manufacturers in promoting recycling, manufacturers of automobiles, plastic products and electrical appliances are advised to use substitutes for CFCs.

Official Explains Policy

OW2811102092 Taipei CNA in English
0743 GMT 28 Nov 92

[Text] Taipei, Nov. 28 (CNA)—Domestic exports will not be sanctioned by member nations of the Montreal Protocol, which know clearly Taiwan's efforts in environmental protection, an official of the Ministry of Foreign Affairs said Friday [27 November].

The official, who preferred to remain anonymous, pointed out that the country made known its willingness to abide by international guidelines aimed at reducing the consumption of ozone-depleting chlorofluorocarbons (CFCs) at the fourth general meeting of the Protocol held in Copenhagen, Denmark last week.

"Our delegates presented an oral statement affirming our position at the meeting, which was listed in the minutes," he said.

He conceded that Taiwan's hopes of becoming a contracting party or contracting party equivalent to the Protocol, which advocates protection for the earth's ozone layer, were tarnished due to the "name" issue.

He noted, however, there are no signs that the Protocol's signatory nations will impose trade retaliation against Taiwan.

The just-concluded meeting of the Montreal Protocol adopted a resolution on a worldwide ban of CFCs which have been widely used as coolant in cars, and in air conditioners and refrigerators, and which are also a key ingredient used in the cleaning of electronic components.

In order to cope with the new situation, the sole CFC manufacturer in Taiwan, Formosa Plastics Group (FPG), decided Friday that it will gradually cut its CFC output and begin to produce CFC substitutes next June.

A company spokesman said that the adjustment of its production line calls for producing two CFC substitutes, HCFC 141d and 142b, which will replace CFC 11 and 12.

Currently, the FPG produces about 100 tons of CFCs daily, far exceeding the domestic demand of 7,000 tons annually.

Premier Hao Orders Ban on Use of Powdered Rhino Horns

OW1911083192 Taipei CNA in English
0745 GMT 19 Nov 92

[Text] Taipei, Nov. 19 (CNA)—Premier Hao Po-tsun ordered an overall ban Thursday on the use of powdered rhinoceros horns in Chinese medical prescriptions.

The Council of Agriculture (OCA) immediately announced that beginning Thursday, it will stop issuing permits for importing and trading rhino horns.

The tough measure came after three wildlife conservation groups charged Taiwan with failing to protect the rare species.

In London, the three private organizations called for an international boycott of Taiwan products in retaliation.

During a cabinet meeting, Hao demanded responsible government agencies to enforce the ban.

National Health Administration [NHA] Director General Chang Po-ya said the government had issued a ban on the use of rhino horns in 1989.

But because rhino horn powder is not a poisonous substance, the government cannot enforce the ban completely, she added.

To show the government's determination in protecting the rare animal, the NHA will announce a complete ban on the use of rhino horns in Chinese medicine prescriptions, Chang said.

COA officials said they will thoroughly implement the "Wildlife Protection Law," under which violators will be sentenced to one year in prison and fined a maximum of NT [New Taiwan] \$10,000.

The officials said they will revise the law to make it more stringent. For instance, they said, fines will be increased to between five and 10 times of the market price of the banned good.

They believed heavy fines will effectively eliminate trading of rhino horns since it will no longer be profitable.

British Group To Back Taipei's Endangered Species Efforts

OW1911082992 Taipei CNA in English
0733 GMT 19 Nov 92

[Text] Taipei, Nov. 19 (CNA)—The British conservation organization whose investigation report on rhino horns was used by three similar bodies to blast Taiwan has agreed to stand up for the Republic of China [ROC], a ranking agricultural official said Thursday.

Lin Shiang-nung, vice chairman of the Council of Agriculture, said he received a letter Wednesday from the Cambridge-Based TRAFFIC (Trade Record Analysis of Flora and Fauna in Commerce) Foundation.

The foundation, Lin said, was positive toward Taiwan's efforts in recent years in the protection of endangered species, including rhinos.

The Environmental Investigation Agency (EIA), a radical British conservationist body, together with two other wildlife protection organizations of the United States, broadcast a TV commercial in Britain earlier this week.

The EIA, citing a survey done by the TRAFFIC Foundation two years ago on the circulation of rhino horns here, strongly condemned Taiwan for stockpiling and trading rhino horns. It also called for a worldwide boycott of Taiwan-made goods until the practice has been stopped.

In the letter the foundation pointed out that "they (EIA) don't acknowledge the progress made by Taiwan on the control of rhino trading....it is a clear and positive way to distinguish Taiwan from other countries."

Lin said the foundation will hold a press conference in London today to clarify what Taiwan has done in wildlife conservation in recent years.

The foundation opened an office in Taipei last October.

THAILAND

Military in Border Timber Trade With SRV, Cambodia

BK1611061892 Bangkok THE SUNDAY POST
in English 15 Nov 92 p 23

[Text] LAST year about 200,000 cubic metres of wood including logs were exported from Vietnam, half of this volume originating from Cambodia, according to a veteran timber trader in Vietnam.

This year, he estimates that 60,000 to 70,000 cubic metres, again half from Cambodian forests and half from Vietnam, have been exported to Thailand and Singapore through three ports in Vietnam: Da Nang, Quy Nhon and Nha Trang.

The timber trade on the Cambodian-Vietnamese border, although it operates quietly, is more active than that along the Thai-Cambodian border, according to the source who has been trading logs and other timber in Vietnam for five years.

He said he is considering retirement at the end of this year if he can no longer find "channels" to continue his activities.

"The Thai military is involved in the timber trade; so are the Vietnamese military," he said, adding: "What does the UNTAC [United Nations Transitional Authority in Cambodia] know."

Vietnam has banned the export of raw logs since 1990. From April this year exports of raw logs and sawn timber have been totally prohibited in line with a policy to stop over-exploitation of forests while value-added activities are developed, such as furniture-making, according to Vietnamese Forestry Ministry officials.

Logging in Cambodian provinces bordering Vietnam has intensified in recent years when Vietnam faced problems of rapid deforestation due to population pressure, as well as the fact that each province in Vietnam could earn money through logging.

"Because the product comes out through Vietnam does not mean the wood is all Vietnamese" the trade said.

Transporting logs out of Cambodia through Vietnam is much easier for "small, independent trader" because the products do not have to pass through routes controlled by the "chao phor", or what he called "guns" in the east and northeast of Thailand.

The only non-tariff barrier he faces is getting the Cambodian wood out through Vietnam is the condition of the roads, which he describes as "the most savage in Southeast Asia".

The route most used to transport log from Cambodia links Rattanakiri with Gia Lai-Kontum Province in Vietnam.

This was built by the Americans as a strategic route during the Vietnam war and, in recent years, has been off-limits to unauthorised visitors but is well known by Thai timber traders.

At the request of buyers, Vietnamese authorities in areas bordering Cambodia can arrange for a mix of Vietnamese and Khmer labourers to fell and process wood in the forests of Rattanakiri and Mondolir—and deeper inside Cambodia in Stung Treng—and then transport the products out through Vietnam.

Along the Vietnamese-Cambodia border, one worker with one saw can constitute a sawmill.

Since he arrived in Vietnam in 1987 he has twice seen situations where "all hell broke loose".

The first was when Thai loggers and timber traders flocked to Vietnam immediately after the nationwide logging ban in Thailand. Now the same people are moving to Cambodia.

During this time, the Singaporean traders have been the only people who never ceased timber trading with Vietnam for Vietnamese or Cambodian wood.

As a guide to the profitability of the trade, the trader would say only that for each cubic metre of wood he makes US\$5-8 on average after deducting kickbacks.

"I rely on the economy of scale—selling in big lots," he said.

Most products from Cambodia are logs. The speed and extent of logging in that country means the last forest in the neighbourhood could vanish in two years.

"I am not an environmentalist, nor an economist. I'm just an opportunist," he said.

Next year he may join the bandwagon in search of business in Cambodia, this time in a totally different field when there is no more timber left to trade.

Thai Businessmen Blamed for Cambodia's Deforestation

BK1611063392 Bangkok THE SUNDAY POST
in English 15 Nov 92 p 22

[Text] Thailand has a bad name in Cambodia. Its businessmen and speculators appear to be buying up anything and everything in this war-torn country.

With their reportedly highly-placed connections in the Thai Government and military, they are also openly destroying Cambodia's forests, directly and indirectly.

"Many think that it is easy for Thai traders to come to Cambodia, fell trees and bribe the Thai military along the border to bring logs into Thailand," said an official of the Rehabilitation Component of the United Nations' Transitional Authority in Cambodia (UNTAC).

The official asked for anonymity, saying she is on loan from a UN agency in Bangkok and fears that because of her statements, the Thai authorities may not allow her to resume her previous post at the end of her contract with the UNTAC.

A report on Cambodia to the UN Conference on Environment and Development—the Earth Summit—in Rio de Janeiro in June described Cambodia as having “exceptional qualifications to develop as a ‘green lung’ of South-east Asia”.

The report, jointly written by an official from the UN Development Programme (UNDP) and an official from the World Wildlife Fund For Nature (WWF), indicates that 73 percent of Cambodia's 18.1 million hectares was reportedly forested in 1965.

It estimates the annual deforestation to be approaching 250,000 ha per year, and remaining forested areas in Cambodia total about 40 percent by now, although confirmation by satellite is needed.

The UNTAC rehabilitation official said, however, that no one really knows the extent of deforestation in Cambodia.

Who does what, where and for how long, is also unknown, the official said.

“Even those who gave out (logging) concessions don't keep records.”

One thing is certain, the Khmer Rouge and Thai traders (with their reportedly highly placed connections in the Thai Government and military) are the main target of criticism over Cambodia's deforestation.

Thai authorities of course deny it is that easy to move logs across Thai borders and claim the criticism is unfair.

Nutthawut Photisarot of the Thai Permanent Mission to the Supreme National Council of Cambodia (SNC) said the criticism stems from a refusal by the Khmer Rouge to disarm in accordance with the Paris peace agreements.

“The UN thinks the Khmer Rouge are able to refuse to take part in the peace process because they have income from logging and gem mining along the Thai-Cambodian border,” he said.

He said countries other than Thailand are also actively involved in logging, especially along the Cambodian-Lao and Cambodian-Vietnamese borders, “but the UNTAC doesn't talk about it”.

“In fact, there is logging throughout Cambodia,” said Mr Nutthawut.

“If there is no more forest in Cambodia, Japan is first to blame and then Singapore and Taiwan.”

He said the Thai Government has a clear policy.

“We do not support logging activities in neighbouring countries.”

On January 14, the Thai Government banned the new import of logs from Cambodia, effective immediately.

Only logs, which must have a certificate of origin, from concessions obtained before the January 14 deadline, are allowed into the country.

A Thai businessman from an influential timber trading family in a lower northeast province of Thailand, bordering Cambodia, said in Phnom Penh that he may lose 60-70 million baht in investment because of the ban.

He complains that the Thai Government did not even warn its people to prepare for the ban. I have been working to secure a logging concession from Phnom Penh since 1991 and when I finally got it I applied for border passage with the provincial authorities (in Thailand) on January 16.

“I thought everything was going well, only to be told days later that a ban had been enacted on January 14. Even the provincial authorities who processed my application did not know there was a ban.”

He said he does not know what policies the Chuan Likphai Government will adopt but asks that the Government should at least warn its people well in advance before passing new legislation.

“We are Thais; we are close to Cambodia. Why do we allow traders from further away to rip the profits from here. If we don't log in Cambodia, others will,” he said.

Logging has greatly accelerated throughout Cambodia, according to recent reports, since a moratorium on export-oriented logging was issued on September 23 by the SNC (though without approval from the Khmer Rouge).

“They are chopping away like mad,” said the same Thai businessman.

The moratorium has set December 31 as the last day logs can be exported from Cambodia; from January 1, 1993, only processed wood can be exported.

“It is only logical that timber traders are hurrying to fell trees and ship them abroad. It is costly to set up an up-to-standard sawmill in Cambodia. Cambodian workers don't have the skills to process logs; the logs may be damaged and it would be a waste,” the Thai businessman said.

The moratorium also calls for no additional concessions to be granted and for a review of all concessions granted by all four Cambodian factions to the SNC.

The UNTAC issued a series of measures on November 6 to put the moratorium in effect until a universally recognised government is set up in Cambodia following a general election scheduled for May.

Dr Hamid Temmar, deputy director of the Rehabilitation Component of the UNTAC, said neighbouring countries will be the first to be called on to help fight deforestation in Cambodia.

“The UNTAC is appealing to the international community for help as it does not have the physical means to enforce it by arms,” he said.

Dr Temmar said there are two types of logging in Cambodia, that of "big reputable companies," and "illegal logging".

"We are concerned about the latter. There are a lot of illegal exports and these will go on unless the international community helps," he said.

The UNTAC rehabilitation official said there are also "a lot of illegal sawmills along the Thai-Cambodian border", which she claims roughly process logs just to meet legal requirements.

"This supposedly processed wood will be reprocessed again on the Thai side of the border," she said.

Neither UNTAC official had evidence as to the location of illegal logging and wood processing activities.

"Of course we do not have hard data," Dr Temmar said.

However, the Thai businessman said: "We have a bad name in Cambodia especially Thai timber traders. Everyone is suddenly environment-conscious.

"For me, it is not worth the investment to roughly process wood in Cambodia in order to reprocess it inside Thailand. Why pay for processing twice?

"There is an additional tax for processed wood to leave Cambodia and also the terrain along the Thai-Cambodian border is not that easy to move logs. It is not like one can cross the border just at any point. There are mines and there are also bandits," he said.

Meanwhile, the UNTAC will start implementing the moratorium at the beginning of next year and hopes that the series of measures to implement the moratorium can be applied effectively.

Dr Temmar said: "It will become more and more risky (for illegal loggers). Even if there are a few adventurers, the risk will become too high."

He said two Singaporean logging companies have already asked the SNC to register contracts concluded with one of the four Cambodian factions.

"The SNC is expected to renegotiate the terms of their contracts but if the contracts are approved, all four Cambodian factions will recognise the documents," he said.

Little is said about Vietnamese logging in Cambodia since 1979 when Vietnamese troops ousted the Khmer Rouge and helped set up the Hun Sen regime.

A member of the People's Committee of Minh Hai province, Vietnam's southernmost province, said that each year since 1980 until recent years, the province had sent at least 100 Vietnamese workers into Cambodia to carry out logging.

Although he declined to reveal the extent of Minh Hai's logging in Cambodia, he said the workers went as far (from the Vietnamese border) as Koh Kong (on the Thai-Cambodia border).

He said Cambodian logs were shipped to Minh Hai for export to foreign countries while some of the Cambodian logs are for local use.

He said much of Vietnam's forests had been destroyed during the Vietnam War through heavy bombardments and through Agent Orange sprayed by the Americans.

"Each province along the Vietnamese-Cambodian border also sent workers to fell trees," he said. However, he insisted Vietnamese workers are no longer being sent by the provincial authorities to Cambodia.

"All came back during the Vietnamese troops withdrawal at the end of 1989," he said.

However, a Thai businessman interviewed in Ho Chi Minh City said that Vietnamese workers are still being sent into Cambodia for logging "upon request".

The businessman, who requested anonymity, claims he has been conducting logging along the Vietnamese-Cambodian border since 1987.

A report on Cambodia to the Earth Summit quoted forestry officials as indicating that as of early April this year, logging contracts had been signed with companies from France, Thailand, and Indonesia totalling 145,000 cubic metres with another 175,000 cubic metres pending.

Total exports for this year are estimated at more than 1.1 million cubic metres. Among countries interested in buying timber are Thailand, Vietnam, Malaysia, Singapore, Taiwan, Japan and France.

The report also pointed out that deforestation is not only the result of logging for export, but also logging for domestic use in reconstruction and mainly for fire wood.

Extreme pressure on land resources in Cambodia is likely with the return of 370,000 refugees from the Thai-Cambodian border, more than 100,000 soldiers being demobilised from all four Cambodian factions, and the daily cutting of wood by an estimated 160,000 displaced people inside the country.

"The cost of deforestation was evident in August 1991 when a flash flood caused an estimated US\$150 million of damage to roads, reservoirs and irrigation structures in three central provinces.

"The Ministry of Agriculture has confirmed that logging in forested areas of Kompong Speu province over the past decade has compromised the ability of that watershed to buffer the effects of sudden tropical rainstorms," the report said.

"Revenue from the sale of timber in the affected watershed is thought to equal only a fraction of the immediate damage by the flood.

"Longer term damage to agricultural land has not been estimated," the report said.

Logging Operators Experience Problems With Cambodian Deals

BK1611055892 Bangkok THE SUNDAY POST
in English 15 Nov 92 p 23

[By Sombat Raksakun]

[Text] Handsome profits seemed ready for the taking. Lucrative deals with various Cambodian rival factions were so easy.

But a number of Thai logging operators have learnt costly lessons that cutting trees is easier than transporting them back across the border into Thailand.

"My family will become beggars if I fail to bring the logs across the border," said one logging businessman well-known in Thailand but who requested anonymity. The businessman said he "invested" 60 million to 70 million baht to obtain a logging concession. He received his concession on January 16 this year from the Hun Sen faction.

But two days earlier, following increasing pressure from environment groups, the Thai Government issued an order banning the importation of logs from neighbouring countries.

The businessman said he has struggled hard to survive and avoid economic ruin. He has dealt with the Thai Government and even politicians to bring the logs across the border but repeatedly failed.

After fruitless efforts on the Thai side the businessman travelled to Phnom Penh to ask a senior Cambodian government official to issue documents reaffirming his concession is legal and ask the Thai Government to review the concession and allow the logs across the border.

"I don't understand why the Thai Government is frightened of the influence of international environment organisations. Is there anything wrong with buying timber from Cambodia which wants to sell their timber?" he said.

"Or do you just want us to sit idle and allow the Singaporeans and Japanese to come in and take it all."

He said he initiated contacts for his concession with the Hun Sen faction back in 1990. In his dealings with high-ranking Hun Sen officials, he had rented a Cambodian government helicopter for about US\$8,000 a day to fly from Phnom Penh to an area where he wanted to cut trees. His concession area is located opposite the lower North-east of Thailand.

During 1990 and 1991, while he tried to get the Hun Sen faction to approve the concession, his company asked for permission from the Interior Ministry and provincial governor to open temporary checkpoint to deliver logs along Thai-Cambodian border.

The businessman said that usually the investment for a logging concession in Cambodia comes to about 10 million to 20 million baht but in dealing with high-rank officials in the Phnom Penh, traders have paid out a lot more to the armed factions. The Cambodian factions demand cash.

He said costs skyrocketed when he had to fork out funds to build a road through a massive minefield along the Thai-Cambodian border to facilitate logging. The businessman said his total investment is now 60 million to 70 million baht.

Apart from dealings with Phnom Penh officials, the businessman said his second nightmare was the arrival of the United Nations Transitional Authority in Cambodia (UNTAC) to implement the Paris peace accords. Under pressure from UNTAC, Cambodia's Supreme National Council issued a moratorium on logging effective from this December 31. Cut timber can be sent abroad legally but must come under the supervision of UNTAC.

The Thai Government's ban and the arrival of the rainy season meant the businessman could not bring his logs into Thailand.

"After the concession was approved, the delivery of logs was delayed by rain-damaged roads despite many trees having been felled and ready to move.

"Even if the rainy season passes, my logs cannot be moved across the border because of the Thai Government's ban on log imports. Even if the Thai Government reviews my concession and allows me to import the logs, there's not enough time to move logs before because of the December 31 ban of logging exports," he said.

"My business is already damaged if the moratorium is not lifted. I will have to take out a loan to build a sawmill to produce processed timber in Cambodia territory. I have paid out too much and I must continue the struggle to the end. I must do every means to survive this crisis," he said.

The businessman questions why UNTAC is focussing only on Thai loggers because the Japanese, Singaporeans and Taiwanese are also major brokers.

"Why do we have to stand still and see them take all the wood," he said.

Chat Thai MP Thanit Traiwut says that everyone, even UNTAC, says that Thai loggers are responsible for deforestation in Cambodia. But in fact there are only 10 logging firms operating in that country.

Mr Thanit said logging is in fact a short-term investment.

"We have time to conduct logging only in the dry season from October to April. We can cut about 10,000-20,000 cubic metres per year," he said.

But Mr Thanit said the majority of investors, after completing their logging deals, will transform their operations into other businesses such as restaurant, hotel or service businesses so that they can establish contacts with senior Cambodian officials or ministers.

Mr Thanit, who first started his logging business in Cambodia in 1984, said his company will not be affected by the moratorium in Cambodia because he conducted business and only brought logs from Cambodia and sent to others. [paragraph as published]

"I'm not worried about the logging ban because my business is not directly affected by concessions. If the SNC bans logs exports, I will import sawn timber from Cambodia instead."

Mr Thanit said the moratorium will affect Thai wood use soon and all Thai logging companies—especially those logging in Cambodia. He estimates that more than 100,000 Thais are logging in Cambodian forests.

Mr Thanit said that generally Thai logging firms obtain a five-year concession from various Cambodian factions to fell trees along a 650 kilometre Thai-Cambodian border including Ubon Ratchathani, Sisaket, Surin, Buriram, Prachin Buri, Chanthaburi and Trat. But most only started operations in May this year. The firms have only just received permission to deliver logs from Cambodia to Thailand through two temporary checkpoints in Surin, Sisaket, Buri Ram and Prachin Buri provinces.

One timber company manager, who used to run logging operations in Burma, said that apart from landmines logging in Cambodia is easier than logging in Burma. Most forests in Cambodia are on the plains or small hills. The firm he works for has invested more than 10 million baht to compete for a concession in Pailin, controlled by the Khmer Rouge. The firm pays out further expenses to transport the logs through areas controlled by Hun Sen and Son Sann factions. His firm has to transport the logs from Pailin to Banteay Meanchey Province opposite Aranyaprathet province.

Like other traders, he is unable to import logs into Thailand because of the ban even though he has heavily lobbied Thai officials and politicians. The manager said the firm also has a concession in an area controlled by Hun Sen in Kampot province. His company has signed contracts with Taiwanese and Italian firms to sell logs by exporting them from Kompong Som port to Taiwan and Italy.

Thai loggers said that while UNTAC focusses attention on them, they turn a blind eye to loggers from developed countries like Japan, Singapore and Taiwan.

While Thai logging companies face problems along the Thai-Cambodian border, loggers from other countries are speeding up the export from Kompong Som port each day.

"I believe the Japanese are behind the logging ban in Cambodia. Japanese are the biggest log consumer. They run logging business in Cambodia before the Thais but no one talks about it," said the timber firm executive.

The Japanese, the Thai logger claim, use UNTAC's authority to prevent Thai loggers from logging interests in Cambodia, adding that deforestation in Cambodia is carried out by the Japanese and Vietnamese and not Thais.

"Japanese have had saw mills in Kompong Speu for more than seven years and export a considerable amount of sawn timber—pinewood from Kampong Som to Japan.

They entered Cambodia before Thai loggers and have been logging for a long time. A Japanese sawmill about eight km from Phnom Penh is an outstanding example. The Japanese invested 40 million baht to set up the mill in 1988, a Thai logger said.

The ban will not affect the Japanese logging business because it is specifically aimed at log exports only, the trader said.

The ban will be enforced through the 27 UNTAC military checkpoints which have been set up along Thai, Vietnamese and Laotian borders and at two ports.

In the past, the Thai Government has given traders concessions to import wood from Cambodia through 18 border passes in Ubon Ratchathani, Surin, Sisaket, Buri Ram, Prachinburi, Chon Buri and Trat.

Six border passes in Prachin Buri province; Ban Sanlochnan, Ban Fao Rai and Ban Non Makmun in Ta Phraya district; Ban Namsai and Ban Nikom Thahanphansuk in Aranyaprathet district; and Ban Khoadin in Klong have been opened to help traders.

Rough estimates of Cambodian timber exports for 1992

Source	Cubic Metres
Exports by central authorities	More than 320,000* (more than 8 contracts)
Illegal Flows to Vietnam	More than 250,000
Illegal Flows to Thailand via Laos	200,000
Dem. Kampuchea exports to Thailand	200,000 (more than 5 contracts)
FUNCINPEC exports to Thailand	128,000 (2 contracts)
KPNLF exports to Thailand	50,000 (reportedly includes timber from Son Sann)
TOTAL	More than 1,148,000

*The export ceiling approved by the Council of Ministers is 400,000 cubic metres.

BULGARIA

Scientist Advocates Shutdown of Unsafe Kozloduy Reactors

AU1611185992 Sofia DEMOKRATSIYA in Bulgarian
11 Nov 92 p 6

[Article by Docent Todor Dimchev: "Kozloduy Nuclear Power Plant: Blackmail of the Nation and Europe?"]

[Text] By publicly displaying the bleak landscape, incidents, and accidents at our nuclear power plant, the mass media have prompted not only alarm, but also real help. Of course, it was first necessary to establish a precise diagnosis. Accordingly, the funds so far allocated by the EC under the PHARE Program [Economic and Reconstruction Aid for Poland and Hungary Program] and so on are principally earmarked for examinations by international experts and for certain apparatus for diagnosing defects, testing, processing nuclear waste, and other urgent requirements. No major investment funds have yet been provided for reconstruction, updating the control and safety systems, the infrastructure, and dealing with accidents. This is due to the unrealistic and, I would say, perverse policies of the leaderships of the Committee for Power Supply and the Committee for Peaceful Uses of Atomic Energy, who mainly defend narrow departmental interests and the interests of cliques.

Following the numerous missions of experts from the International Atomic Energy Agency, the Nuclear Plant Operators Association, the European Consortium, the World Bank, Cousteau's team, and so on, a relatively objective diagnosis has been established on the safety situation at the Kozloduy Nuclear Power Plant. The findings and conclusions of the independent experts naturally place the emphasis on the realistic and feasible alternative: gradually to withdraw the four old WWR-440/230 reactor units from service, and to concentrate efforts mainly on reconstructing and making safe the two 1,000-Megawatt reactor units, bringing them up to European standards of operational safety. The old reactors suffer from fundamentally irreparable design and technological faults, whose elimination is economically inefficient and technically almost impossible to achieve, to bring them up to European standards. The risk of a serious accident during their operation is at present more than one in a thousand, whereas the permissible risk in Europe is less than one in a million! This is why the Germans shut down their nuclear plants of this type, and the Czechs are trying to do the same.

It is true that we are threatened by a severe energy crisis if the winter is hard, and this is the main "argument" offered by the Bulgarian nuclear lobby. Such an argument is not gentlemanly, to put it mildly, because the country's energy balance relies on a considerable number of constantly varying factors (such as the load imposed by the energy-wasting production facilities, the maintenance of the energy producing facilities, the securing of fuel supplies for them, and so on). What we need is to make a proper analysis of all these factors to establish the arguments for

an optimum alternative strategy, which should be made public! Anything else is demagoguery and blackmail, aimed at bringing into play the four dangerous reactor units at Kozloduy that have hardly been in operation during the past year. However, some of these units are already being readied for recommissioning, without making it clear to the public the extent to which the prescriptions of the radiation and nuclear safety inspectors have been fulfilled. Docent Yanko Yankov, chairman of the Committee for Peaceful Uses of Atomic Energy, told us on television about "the nation's choice," without committing himself to any concrete statement of the risk that we face, and without assuming any personal responsibility, let alone giving any guarantees. The government must give us an answer. This is the familiar mentality of totalitarian misrule: "The collective decided, no one is personally responsible." This is why we find ourselves in this plight.

Instead of directing their efforts toward reconstructing the 1,000-Megawatt reactors and rendering them safe, the leaderships of the above-mentioned committees are holding negotiations abroad mainly on financing the work to make the old reactors safe. All this is dictated by the mafia-like interests of the nuclear lobby, behind which stand major international concerns—potential suppliers of equipment for the nuclear power plant.

Such a game is very easy to see through, and the financial circles in the EC realize this. The necessary condition for major investments is a program to shut down the four dangerous reactor units in stages, which they would help to implement almost free of charge. This was hinted at the World Energy Conference recently held in Madrid. A further necessary condition is that the state of our nuclear power plant and all actions taken in this connection should be made fully public.

Radiation Expert Defends Kozloduy Nuclear Plant

AU1611152892 Sofia KONTINENT in Bulgarian
12 Nov 92 p 3

[Interview with Professor Tsvetan Bonev, head of the Nuclear Physics Faculty at St. Kliment Ohridski University of Sofia and a radiation research specialist, by Velina Dimova; place and date not given: "The Nuclear Power Industry Needs a Constructive Approach, Not Easy Scoring of Points"]

[Text] [Dimova] Professor Bonev, almost whenever nuclear power plants are discussed, Kozloduy included, people connect them with radiation.

[Bonev] There is a lot of speculation about the phenomenon of radiation, which is a very complex topic, because when one is addressing the uninformed public, it is very easy to score points by arousing fears, and the subject is extremely suitable for speculation.

[Dimova] What is your view of the state of the Kozloduy Nuclear Power Plant? Does it present a danger?

[Bonev] Sofia University has a lot of detailed information about the extent to which the reactors are contaminated with radioactive materials. This data has been collected by

every possible applicable research method. The Nos. 1 and 2 reactor units are the most heavily contaminated. Compared with them, the No. 5 Unit is as clean as a pharmacy, while the indirect contamination of the Nos. 3 and 4 units is very slight. In Unit 5 the indicated values are 20 to 50 times less than the permissible figures. The reason for the present condition of the Nos. 1 and 2 Units is that they have not been properly cleaned for many years, and it is to be expected that they would accumulate radioactive substances during 15-20 years of service.

[Dimova] Can this be corrected?

[Bonev] Yes, the oldest units have to be thoroughly cleaned out, which no one had thought of doing in the recent past, when people worked only to produce. Modern cleaning equipment and special agents for converting complex chemical compounds [kompleksopreobrazovateli] are available. In any case, one should not think that the units will have to be shut down to complete this cleaning.

[Dimova] People say that from the technical aspect the old units have not been rendered safe in the event of an accident. If so, does this mean that they could not be used to their full capacity?

[Bonev] In some respects, the original four units are designed to an outdated concept. This is a feature of all reactors throughout the world that were built 20-25 years ago. However, on the other hand, our units are made from extremely reliable materials and no money was spared in their construction. A study that we carried out on the No. 2 Unit established that reactors of this type could be used for a much longer period than that originally planned. People think that the first reactors have no hermetically sealed zones. In fact, they do possess such zones, but they are small in volume, and, in the event of a major accident, could not contain the radioactivity produced. However, this can be corrected; indeed, the U.S. Westinghouse Company is constructing additional sealed zones with powerful cooling systems and filters. This solution is not expensive. There is no need to stir up speculation on this issue. Because the units are not hopelessly outdated, it is enough to fit them with good equipment.

[Dimova] In your opinion, where do the problems lie in our nuclear industry?

[Bonev] If any major problem does exist, it is the question of how to dispose of the waste fuel. We are a small country, and there is no possibility of constructing a storage site. Only now have experts started investigating the condition of the control and monitoring systems of the old reactor units. We have to evaluate them and replace them. If Bulgarian organizations take part in this work—for Bulgaria has a strong electronics industry that has not been ruined, then the work might cost less.

[Dimova] Recently many voices have been raised against our nuclear power plants and against the nuclear power industry, even in Bulgaria.

[Bonev] We need a firm state policy that will examine the problems individually, assess whether a solution exists,

and if one does, put it forward. We cannot reject something without knowing whether there is another solution. The people who want to do away with our nuclear power industry must be prepared to discuss the issue with specialists. How many of them are ready to do this at the professional level? Instead of scoring cheap points, we need a constructive approach in discussing this subject, which is of vital importance for all of us.

Experts Study Contamination of Land Around Kozloduy Plant

AU1711144192 Sofia BTA in English
1418 GMT 17 Nov 92

[Text] Kozloduy, November 17 (BTA)—Ecovicon, a Bulgarian-Italian company, will conclude its study of the effect of the Kozloduy Nuclear Power Plant on the environment at the year's end. The plant's management, which ordered the study, expects it to find out whether the land around the plant has been contaminated and whether it is fit for cultivation. The six units of the Kozloduy Power Plant, situated near the Danube River, lie on some 300 ha [hectares] of land known for its fertility in the past. The sanitary zone occupies 26,000 ha of land, which should be returned to its owners.

Ecovicon experts have taken 200 samples per sq.km to analyse the content of the soil and to recommend how to rehabilitate it. According to preliminary results, the land has been polluted by lead and oil-products rather than by radioactive materials. Experts put this pollution down to irrigation with water from the Danube River and rule out the possibility of discharges from the nuclear power plant.

Minister Announces Reduction in Pollution

AU2511153092 Sofia BTA in English
1520 GMT 25 Nov 92

[Text] Sofia, November 25 (BTA)—Environmental pollution in Bulgaria has been reduced between 30 and 40 percent this year, the outgoing Minister of the Environment Valentin Vasilev told reporters.

The main reason for the reduction is the economic decline, Mr. Vasilev said. Other reasons are the strict controls introduced by the ministry, the closures of some industrial polluters and the installation of new waste treatment facilities.

702 million leva have been spent on environmental protection in 1992, twice as much as in 1991, Mr. Vasilev said. The environment minister reported the ministry's performance over the last twelve months and familiarized the media with the programme for next year. By the end of 1993 parliament should pass the basic environmental protection laws, he said. Two acts have been entered in parliament and other two have been drafted, the minister said.

By then, the ministry has to operate on the basis of subordinate legislation and orders, Mr. Vasilev said.

CZECHOSLOVAKIA

Legal Specialist Views Danube Dispute With Hungary

AU1611132692 Budapest BESZLO in Hungarian
14 Nov 92 p 37

["T.L."-signed interview with Peter Vrsansky, head of the International Law Department of the Slovak Foreign Affairs Ministry; place and date not given: "The Contract Above All"]

[Text] *[BESZELO] It is rather strange for outsiders that such irreconcilable legal interpretations have emerged in the Bos water barrage dispute. In your view, what is the reason for this?*

[Vrsansky] In my view, it comes from the different opinions of the CSFR and Hungary on the validity of the agreement on the construction and operation of the Bos-Nagymaaros water barrage system. While we continue to consider the 1977 agreement valid, the Hungarian side unilaterally suspended it in spite of the fact that the agreement did not contain any provision for this.

[BESZELO] The Hungarian side's first argument is that it cannot participate in a process that would cause an environmental disaster, and, second, it regards the diversion of the Danube as a violation of its territorial integrity. What are the views of the CSFR side on these arguments?

[Vrsansky] The environmental risk factors are not the subject of legal investigation. However, we certainly have to define the meaning of this notion. For example, our experts also point out the risks that will result precisely from not completing the water barrage system; what the cutting of the river bed [mederbevagodas] means for Bratislava and the woods in the flood area.

As for the violation of territorial integrity, since we continue to take the 1977 agreement as a basis, in the CSFR view, the border remains the same and only the line of shipping will be changed. As a matter of fact, the oft-mentioned Trianon Treaty also allows this, namely, in addition to creating side-channels, the sides are allowed to agree to change the line of shipping. In our view, the 1977 agreement is such an agreement.

[BESZELO] How can the line of shipping be changed at the Dunacsuny[Conovoj]-Dunakiliti section, which is not mentioned in the agreement?

[Vrsansky] In this case, steps created on the basis of cause and effect follow. You are right in saying that the 1977 agreement does not reckon with the implementation of the "C" version. However, the CSFR interprets this as a reply to the Hungarian side's unilateral step in 1989, which we were forced to take to ensure the completion of the essence of the agreement. That is why I like to emphasize again that the "C" version is a forced step. It is a temporary, avoidable, and legal countermeasure. We were forced to take this step because, in our view, suspending the water barrage construction has evident ecological risks. It is temporary, because the "C" version can be eliminated if

the Hungarian side returns to fulfilling its original contractual obligations, or it at least tries to resolve the disputed issues within the limits of the agreement.

However, contrary to this, the Hungarian side is trying to show what would be caused by the implementation of the barrage system. We will see the decision on this matter by the EC committee, which is obliged to form an opinion on what would happen if the barrage was not put into operation. All in all, we continue to state that the issue has to be approached in an overall way and this could be done by returning to the agreement. However, it is important that no further unilateral steps are taken. The series of such steps was opened, unfortunately, by the Hungarian side when it first stopped the construction at Nagymaros and then the other work, which gave rise to our countermeasures.

[BESZELO] To what extent can The Hague International Court change the CSFR's views?

[Vrsansky] According to our international lawyers, the CSFR need not worry about The Hague court. On the contrary—the damage caused by the Hungarian measure in 1989 continues to increase. However, in my view, we would be more likely to find a solution by involving the EC. The reason simply is that The Hague court only deals with legal disputes, while the EC has experts on all special areas of the issue. In addition, the negotiating possibilities included in the agreement might not yet have been exhausted. We know of cases when a The Hague court took 20 years to make a decision. If this is going to be the case this time, what should happen to the water barrage system awaiting completion while the delay in putting it into operation carries the danger of a catastrophe?

Gabcikovo Work Suspension Presents Flood Danger

AU2511125292 Prague CTK in English
2139 GMT 23 Nov 92

[Text] Bratislava, Nov 23 (CTK)—Halting work on the Gabcikovo water works on the Danube as agreed on by the Brussels commission of experts might pose the threat of floods, deputy director of the Bratislava-based water management construction enterprise building the project Jan Oblozinsky told CTK today.

On Saturday [21 November], Czechoslovakia pledged to immediately halt all work at Gabcikovo with the exception of maintenance necessary to preserve the essence of the existing equipment.

Oblozinsky said he was surprised by the decision as the maintenance as mentioned in the pledge does not apply to the equipment used to drain away water when the water level increases. He added that he expects a dangerous increase of the Danube level during the day, but does not know how the situation will be solved.

The pledge to halt work at Gabcikovo was made on the last day of the work of a group of experts comprising representatives of Czechoslovakia, Hungary and the European

Community (EC) which had been since November 6 discussing various aspects of the controversial Danube project.

The office of the government commissioner for the construction of Gabčíkovo today said it will only respond to the Brussels decision when it learns about its details. This is why no stand on the halting of work has as yet been taken, Milan Jencik of the office said. He nevertheless confirmed that the work has been halted.

The conclusions reached by the group of experts in Brussels and its recommendations are to be kept secret at least until November 27 when a second round of talks on Gabčíkovo between representatives of Czechoslovakia, Hungary and the EC is to take place in Brussels.

If the current effort of the EC for mediating a solution to the Czechoslovak-Hungarian dispute over the Danube project on the Slovak-Hungarian border fails, the dispute will be passed for judgment to the International Court of Justice in The Hague.

The Gabčíkovo-Nagymaros water works started to be built jointly by Czechoslovakia and Hungary in 1978, but in 1989 Hungary unilaterally halted work on its part of the project at Nagymaros citing environmental reasons. In May 1992 Hungary rescinded its 1977 agreement with Czechoslovakia on the construction of the twin-dam project while Czechoslovakia went ahead with its part at Gabčíkovo.

Following the damming of the Danube, against which Hungary resolutely protested, first electricity was produced at the Gabčíkovo hydroelectric plant on October 27 and navigation in a new canal opened November 10.

The stoppage of work on the Gabčíkovo hydroproject will cause Slovakia a loss of about seven million crowns (250,000 USD) per day, representatives of "Vodohospodarska Vystavba", the Slovak enterprise building the project, told TA SR today.

According to the same sources, the probability of damage being caused to the structures which have not been completed and to lower-situated areas in case of floods is higher now.

The Slovak Hydrometeorological Institute in Bratislava has reported that precipitation has caused the surface of the Danube quickly increasing.

Milan Jencik from the office of the Slovak Government's commissioner for the Gabčíkovo-Nagymaros project construction told CTK that halting work on the Gabčíkovo project should be regarded as an accommodating step taken by the Czechoslovak side.

He thinks that there is no threat of floods, but added that increased attention must be paid to the structure.

Hungary accepts Czechoslovakia's pledge to stop work on the hydroproject at Gabčíkovo on the Danube as of November 21, Hungarian Government Spokesman Janos Hermann told CTK by phone today.

Hermann said that even though the Czechoslovak side had not lived up to its previous commitments, Hungary welcomes the Czechoslovak step and is waiting for the expert commission to announce its conclusions November 28.

Herman thinks that the danger of floods on the Danube is not acute.

EC Gabčíkovo Report 'Favorable' for CSFR

*AU0112131992 Prague CTK in English
2049 GMT 27 Nov 92*

[Text] Bratislava Nov 27 (CTK)—The report by a European Community (EC) expert commission on the Gabčíkovo hydroelectric project on the Danube is favorable for the Czechoslovak side, Julius Binder, director of "Vodohospodarska Vystavba" enterprise which is building the project, said on Slovak Radio tonight.

He was speaking from Brussels where he is attending talks between representatives of Czechoslovakia, Hungary, and the EC.

According to Binder, the expert report says that no ecological disaster will be caused by the Gabčíkovo hydroproject and that all its parts are fully functioning.

Binder also said that EC experts have called on Hungary to cooperate in adjusting the old Danube's bed.

In the talks, Binder said, the Hungarian delegation has been stubbornly asserting the implementation of the "D" variant of coping with the project, that is its destruction.

In view of Hungary's attitude, he does not expect that the report by the EC expert commission will be discussed and evaluated in the Brussels meeting, Binder said.

The group of experts consisting of representatives of Czechoslovakia, Hungary, and the EC started discussing various aspects of the controversial Danube project on November 6.

The Gabčíkovo-Nagymaros water works started to be built jointly by Czechoslovakia and Hungary in 1978. In 1989, Hungary unilaterally halted work on its part of the project at Nagymaros citing environmental reasons. In May 1992 Hungary rescinded its 1977 agreement with Czechoslovakia on the construction of the twin-dam project while Czechoslovakia went ahead with its part at Gabčíkovo.

Following the damming of the Danube, against which Hungary resolutely protested, first electricity was produced at the Gabčíkovo hydroelectric plant October 26 and navigation in a new canal opened November 10.

HUNGARY

Danube Commission Passes Resolution on Bos Affair

*AU2011111092 Budapest MTI in English
1323 GMT 17 Nov 92*

[Text] Budapest, 17 Nov (MTI)—Effects of the Gabčíkovo plant on Danube navigation, the implementation of the UN Security Council sanctions against Serbia and Montenegro

in Danube navigation and the tolls demanded by Belgrade for use of the Danube's Serbian section were the issues discussed by the Danube Commission on Monday [16 November].

Foreign Affairs spokesman Janos Herman briefed the press on the conclusions of the discussion on Tuesday [17 November].

The Danube Commission, which held its fourth extraordinary session, included the effects of the Gabčíkovo plant on Danube navigation in its agenda at Hungary's initiative.

After a long discussion, the Commission decided that at its session from 7 to 12 December, the expert committee in charge of navigation should examine the power plant's effects on navigation and compile a report on its findings for the Danube Commission.

The session also considered whether the UN Security Council sanctions against Serbia and Montenegro are being observed in the Danube navigation. Herman said Hungary abides by the Security Council resolution No. 286 in all respects, refusing to allow banned consignments to cross its border with Serbia. Hungarian authorities even examine ships going to Serbia and Montenegro as transit stops, in order to prevent banned products reaching Serbia in transit traffic.

In another development, the Danube Commission called upon Belgrade to immediately withdraw a decree under which it collects tolls for the use of the Serbian Danube section. According to the Commission, such a decision jeopardizes navigation on the Danube and runs counter to the Belgrade Convention, a document on Danube navigation signed at the founding of the Danube Commission in 1948.

Foreign Minister Views Danube Dispute With Slovakia

AU2311134792 Vienna PROFIL in German
23 Nov 92 p 52

[Interview with Foreign Minister Geza Jeszenszky by Hubertus Czernin and Michael Siegert in Budapest; date not given: "The Danube Needs Water"]

[Text] [PROFIL] *Mr. Minister, what are you doing against the diversion of the Danube by the Slovaks into a power plant canal south of Bratislava—a step against which your government has always warned?*

[Jeszenszky] It is a serious violation of Hungary's sovereignty, in particular the 1947 peace treaty. We have decided to bring the case before the International Court in The Hague, if possible together with Czechoslovakia. Recently, however, there has been a remarkable shift in responsibility. Czechoslovakia said it could do nothing in this matter until the country's partition was completed, and Slovakia said it could not yet promise anything.

[PROFIL] *You also approached the European Community.*

[Jeszenszky] Yes, and the result was the trilateral agreement of the EC Commission, Hungary, and Slovakia in

London on 27 October. The Hungarian side accepted it immediately, to show our readiness for cooperation. The agreement contains a very important point, namely, that the other side is doing something that it has already privately or semi-officially promised to do—that 95 percent of the Danube water will be diverted back into the old river bed. Slovakia should have implemented this point of the London agreement without delay, but it has failed to do so.

[PROFIL] *Do you really believe that Slovak Prime Minister Meciar is impressed by such documents, in view of the tough attitude he has demonstrated so far?*

[Jeszenszky] Since there is also a London agreement on Bosnia that has regrettably not been implemented, we are asking ourselves whether the new Slovakia intends to behave in its first appearance before the international public as the southern Slav forces have done.

[PROFIL] *Is there a compromise between the Hungarian and the Slovak positions? Would two-thirds of the Danube water be enough for you?*

[Jeszenszky] This is not a political but an ecological problem. To my knowledge, two-thirds of the Danube water would not be enough. The river needs as much water in its bed as it had in the past. The situation there is indeed disastrous.

[PROFIL] *The 1920 peace treaty of Trianon and the 1947 peace treaty say that the border runs in the middle of the Danube. Your government is arguing now that, as a result of the diversion of the Danube, the border has moved further north.*

[Jeszenszky] We have said repeatedly—but privately rather than publicly—that if we applied the peace treaty literally, we could claim this small region, but we have not made such a claim.

[PROFIL] *You could say, if this is our territory, that we will dispatch our troops to the north, to the dam, and they will open the gates there and divert the water back into the old Danube bed.*

[Jeszenszky] I must tell you that we really did not discuss such an option.

[PROFIL] *Do you insist on regional autonomy for the Hungarians in southern Slovakia?*

[Jeszenszky] Not we, but the Hungarians living there insist on local self-administration, local democracy. It could have different forms. To my knowledge, the Hungarians in southern Slovakia do not want a narrow strip of land where they would have exclusive rights. They want regional autonomy, which could perhaps combine a number of regions.

[PROFIL] *More and more Hungarians from Vojvodina are being expelled into emigration by the Serbs. Do you consider this a policy of ethnic cleansing?*

[Jeszenszky] This is a great danger. It should not have happened in Bosnia, and God forbid that such a thing should happen in Vojvodina! Serbian and Yugoslav officials have stressed repeatedly that the security and rights of the Hungarians living there are guaranteed. However, as long as there is no peace in the former Yugoslavia, there is no guarantee for the rights of the Hungarians in Vojvodina. The Carrington plan, which envisages a good solution for the Serbs in Croatia, should also apply to non-Serbs in Serbia.

[PROFIL] *The weak point of such plans has always been that there is no authority to implement them. Do you advocate the use of military force by the UN Security Council?*

[Jeszenszky] When all other options are exhausted, I would advocate it, as a last resort under Article 7 of the UN Charter. So far, it has at best been possible to maintain cease-fires, not to preserve peace. Peace must be maintained in regions where it still exists. Vojvodina is such a region, and I am glad that at least CSCE observers have been sent there.

Environmental Damage Noted at Former Soviet Military Airport

AU2511150392 Budapest MAGYAR HIRLAP
in Hungarian 24 Nov 92 Supplement p II

["O.Z."-signed report: "Kerosene Produced in Kunmadaras"]

[Excerpts] Following the withdrawal of the Soviet troops temporarily stationed in Hungary, Hungarian officials began to assess the damage incurred during this temporary deployment of Soviet troops in Hungary. In the course of this assessment, the experts examined 171 locations and assessed the environmental damage at 60 billion forints. More than 10 percent of this huge sum is concentrated in one place, Kunmadaras.

The construction of Kunmadaras Airport was begun in 1942 by the Germans, and a year later the airport was in full operation. The Soviets then developed this military base to such an extent that in the middle of the eighties two air wings and connected service personnel were defending the interests of the Warsaw Pact here. [passage omitted]

Kunmadaras Airport is one of the largest military airports in Central Europe, and large transport planes can also land safely on its 2.5-kilometer runway. The landing strip was renewed in 1986, and the reconstruction technology equals that at Ferihegy-2 Airport. The fighter planes and fighter bombers were once hidden in 72 bomb-proof hangars. The security of these hangars is shown by the fact that each entrance door was made of reinforced concrete weighing 117 tonnes....

However, the main reason for focusing on this airport is the environmental damage there. [passage omitted]

According to expert investigations, 240 cubic meters of floating hydrocarbons had to be secured at Kunmadaras.

Experts also found 1,100 cubic meters of hard hydrocarbons in nine places. Dangerous waste was found in six places, with pieces of music records, kitchen waste, and even a bomb. [passage omitted]

POLAND

Report Lists Ecological 'High Risk' Regions

93WN0089A Warsaw TYGODNIK SOLIDARNOSC
in Polish No 42, 16 Oct 92 p 21

[Article by Dariusz Grzywaczewski: "Black Ranking"]

[Text] Poland has 27 areas of ecological risk and 80 polluted cities where the acceptable levels of pollution are broken many times over. The polluted areas constitute 11.2 percent of Poland's territory. They are populated by 13.5 million people.

A report of the Central Office of Statistics lists the following regions as being at particularly high risk—Belchatow, Bydgoszcz-Torun, the Upper Silesia, Gdansk, Lodz, Czestochowa and Walbrzych. While these areas constitute only little more than 10 percent of Poland's territory, as much as 81 percent of fumes and 74.4 percent of ash are emitted there. In addition, more than a half of Poland's municipal and industrial sewage is released there. Furthermore, 92 percent of the country's industrial waste is stored there as well.

To be sure, the pollution of air, water, and soil has been decreasing for quite some time. However, this is due to the recession of the Polish economy, not to the improved environmental protection. It is recession that is responsible for the fact that in the last five years the emission of ash and fumes in the most polluted areas has decreased on the average by 40 and 16 percent, respectively. Besides, the amount of the untreated industrial sewage has decreased by 38 percent. Only the concentration of the industrial waste has increased. Still, the situation is far from perfect.

Areas of ecological risk are mostly those which are highly industrialized and urbanized. Unfortunately, the technological backwardness of the Polish industry has had a negative impact on the environment. No wonder that the most industrialized areas face most ecological problems.

When we talk about toxic substances we have in mind not the entire amount of released fumes and sewage, but only the amount of substances which have not been treated or neutralized. Unfortunately for us, those two figures do not differ very much.

All areas which face ecological risk are threatened by a high amount of fumes, ash, sewage, and waste. However, the degree of pollution is different in different regions. One may find an infamous winner in each category of ecological threat.

Thus, the Upper Silesia area "produces" the largest amount of sewage per square kilometer (300,000 cubic meters yearly, compared with the Polish average of 13,000 liters [as published]). The Turoszow region releases the largest amount of ash—200 tons per square kilometer (the

Polish average is five times smaller). In turn, the Belchatow region discharges the largest amount of toxic fumes—as much as 1,871 tons per square kilometer (the Polish average is 13 tons). The Rybnik region has gathered the largest amount of industrial waste—265,000 tons per square kilometer (the Polish average is only 5,000 tons).

This is shocking data. It is not uncommon that the concentration of the toxic substances is 10 times above any acceptable level. It happens not only in the registered regions of ecological risk, but also in cities located somewhere else.

The town of Swiecie, population 50,000, heads the list of the most polluted cities in Poland. Surveys have revealed that this town emits the highest amount of sulphur dioxide per square kilometer—4,958 tons yearly. It is also first in the "production" of municipal and industrial sewage—4.8 million cubic meters per square kilometer. Only in the category of the industrial waste concentration Swiecie was beaten by other cities, having taken the distant fifth place. Still, there is no doubt that this is No. 1 town on the list of cities facing ecological risk, measured by the area.

On the other hand, Warsaw is the largest source of pollution in general. Yearly it "produces" 275,000 tons of the sulphur dioxide and 37.7 million cubic meters of untreated municipal and industrial sewage, the latter discharged directly into the Vistula river.

These hair-raising figures are more than just statistics. They are also reflected in the devastation of the natural environment and in terrible health risks.

To illustrate this thesis it is enough to say that the birth rate in the areas of ecological risk is two times lower than in the rest of the country, while the death rate is higher, despite a much better health care in those regions.

The main reasons of that high death rate are the illnesses of the circulatory system (55 percent in the Upper Silesia region, for example) and cancer (22 percent). A similar ratio has been observed in other areas of ecological risk.

Ecological Damage Left by Departing Russian Forces Assessed

*PM1911151492 Wroclaw SLOWO POLSKIE in Polish
4 Nov 92 p 4*

[Tomasz Kowalik article: "Ecological Damage Caused by Military: Separation Monitored"]

[Text] After the signing, in May this year, of the bilateral documents of an agreement entitled: "On the Settlement of Property, Financial, and Other Matters Connected with the Withdrawal of the Russian Federation Armed Forces From Polish Territories," 237 inspectors of the State Ecological Protection Inspectorate [PIOS] began a round of ecological monitoring of military facilities, designed to record all ecological damage caused by the military presence—in other words, the results of the stationing of the Russian Federation Armed Forces in several dozen military bases and training grounds.

The extent of the damage is best exemplified by the case of the parish of Stara Kopernia in Zielona Gora voivodship, where the monitoring operations revealed more than 1.2 million cubic meters of heavily contaminated soil over an area of 41 hectares, with the costs of soil reclamation estimated at 1.7 trillion zlotys [Z]. In the parish of Szprotawa, the costs of reclaiming the contaminated soil over an area of 16 hectares were estimated at more than Z488 billion.

The work of PIOS inspectors, begun in June, is still under way, since the extent of the damage is very considerable. The inspectors record the current condition of the natural environment and the contaminated areas, which then require specialist monitoring operations. There have been some unexpected finds, such as that recorded at the Russian Federation Army's unit in Wroclaw, where the inspectors found a radioactive cube used in military exercises. It was then necessary to collect the "find" together with the surrounding rubble and to hand it over to experts who prepared it for safe removal to Russia. Moreover, it was necessary to escort the entire cargo all the way to the Polish border.

The above was just one case among all the operations recently carried out by PIOS inspectors. Environmental monitoring reports are an integral element of the sets of necessary documents which accompany the operation of handing over military facilities to the relevant Polish authorities.

However, implementation of the provisions of the aforementioned May agreement is not going entirely smoothly. Polish inspectors are still encountering difficulties while checking out army barracks sites and other facilities used by military units such as firing ranges, outdoor training grounds, and so on. In some cases, they uncovered—and foiled—attempts at unjustified removal of various materials and even specialized equipment from former military sites. In one case, a major disaster was averted thanks to their expertise and vigilance: They discovered caches of chemical waste materials buried by soldiers of the Russian Federation Armed Forces on the site of the military airport at Krzywa in Legnica Voivodship. Subsequent analyses showed considerable soil pollution with quantities of airplane fuel, diesel oil, and detergents. The case is being investigated by the Garrison Prosecutor's Office in Wroclaw.

All in all, the environmental damage found on and around the sites of many military units, army training grounds, and shooting ranges in the four months that passed since PIOS inspectors began their work has been estimated at Z3.3 trillion. And the inspectors' work is far from completed. Experts from the Military Technical Academy and regional State Forestry Boards are assessing the extent of environmental damage to forests. This is mainly the result of extensive site contamination by oil-derived products (on eight large sites), pollution of surface and subsurface waters, contamination by chemical warfare agents, destruction of trees and contamination of soil, and even radioactive site contamination.

The investigation into and assessment of the present condition of the natural environment are still under way and, according to the timetable prepared by the PIOS Monitoring Team, this work will continue until the end of June 1993. A special concluding report will present the full extent of the environmental damage and the associated problems, as well as a range of proposed methods of environmental reclamation of the sites in question and the estimated costs of such restorative operations. On a number of sites where PIOS inspectors have already completed the work of preparing inventories of the existing facilities and assessing their condition and the extent of environmental damage caused by their use for military purposes, specialist teams are even now beginning to launch operations designed to repair some of the damage and reclaim the natural environment wherever possible. These operations include reforestation, restoration of the road network, and removal of waste metal, rubble, and other environmentally polluting materials.

YUGOSLAVIA

UN Official 'Reasonably' Optimistic About Montenegro Dam Repairs

*AU0112123792 Paris AFP in English
1231 GMT 01 Dec 92*

[Text] Geneva, Dec 1 (AFP)—Work to shore up a weakened Montenegro dam holding back millions of tonnes of toxic pollutants should be completed in about 10 days, a U.N. official supervising the project said Tuesday [December 1].

"I am reasonably optimistic and I think that the worst has been avoided provided we have no new rains," said Hans Zimmermann of the United Nations Department of Humanitarian Affairs (DHA-UNDRO) after visiting the site this weekend.

The dam at Mojkovac was weakened by rains that turned a mountain river, the Tara which feeds into the Danube basin network, into a torrential waterway. The dam holds back seven million tonnes of toxic residue from old zinc and lead mines, that are now closed.

Should the dam break, it could seriously pollute parts of Montenegro, Serbia and other Danube areas, experts have warned.

Small dykes are already in place to redirect the river's flow and "the current is no longer eroding the dam's base," Zimmermann said.

Two U.N. engineers are overseeing the work, which included covering the top part of the dam with plastic sheeting to prevent rain water from infiltrating and weakening the structure.

Metal, rock-filled cages were set up to strengthen the dam wall, but "new rainfalls could aggravate the situation," said Zimmermann.

U.N. officials were also trying to help 6,000 residents from Mojkovac who are now homeless after their houses were destroyed by the torrential rains that have pounded the region in recent weeks.

The only hotel in Mojkovac is right next to the toxic dump.

REGIONAL AFFAIRS

Four Countries To Protect Ecology in South Atlantic

PY1211195492 Buenos Aires NOTICIAS
ARGENTINAS in Spanish 1315 GMT 12 Nov 92

[Text] Buenos Aires, 12 Nov (NA)—Admiral Jorge Ferrer, the Navy chief of staff, has stated that the Governments of Argentina, Brazil, Uruguay, and Paraguay have agreed to expand the so-called South Atlantic Maritime Area (AMAS) [Area Maritima del Atlantico Sur], making it an intercontinental mechanism to defend the ecological reserves of the region, and an instrument for mutual security.

Ferrer made this announcement during an interview published today by the morning newspaper EL CRONISTA COMERCIAL. He noted that South Africa and Nigeria were invited to participate, and that the invitation will be also extended to the United States, the United Kingdom, France, Spain, and Italy.

Ferrer said: "The objective is to make the South Atlantic into an entity with its own legal mechanism established through a peace organization that can rationally exploit the resources and prevent an ecological damage. It will be also empowered to face security problems."

He said that there are "multi-metallic nodules" [nodulos polimetálicos] (all sorts of mineral resources), which have not yet been exploited "because of the excessive cost," adding: "this problem will soon be overcome by modern technology."

Ferrer said: "The expanded, oceanic, intercontinental AMAS that has been already implemented will protect these resources and its members through an organization that will also provide for mutual security."

Asked whether the expanding of AMAS would not separate Argentina from the rest of South America, Ferrer said that Argentina's fate is linked to that of the region. He added that Argentina followed the wrong international path during the [word indistinct] decade and lost the century. Ferrer said: "Argentina now wants to regain its place as a protagonist in the 21st Century. It does not seek to exclude anyone, on the contrary, it has deep South American roots."

ARGENTINA

Southern Cone Nuclear Policy Viewed

PY1611221992 Buenos Aires LA PRENSA in Spanish
15 Nov 92 p 9

[Article by Alfredo Canedo]

[Text] The government believes that the Peaceful Use of Nuclear Energy Agreement, which was signed by Foreign Minister Guido Di Tella and U.S. Ambassador Terence Todman in Buenos Aires on 3 September, will allow the National Atomic Energy Commission (CNEA) to build reactors and sell them to third countries. Official reports,

however, are still very confusing because they do not define any concrete project or establish any means to finance the development, design, and manufacture of sensitive materials.

This situation is new. We must remember that until quite recently the United States feared that the proliferation of Argentine nuclear technology would result, not in its use in war, but in possible sales to the Near East. In March 1991, following the sale of a research reactor to Algeria during the administration of former President Raul Alfonsín, the U.S. Department of State press office sent the Latin American media a report on the sale stating: "The existence of nuclear reactors and medium-range missiles in Algeria, which is in an area of strategic interest to the United States, represents a threat. It is also cause for concern that Argentina possess said material and that it chooses to trade it with Algeria."

What is behind this "new position" in U.S. diplomacy and what is the political and economic significance of such an important change? We believe the matter was entirely clarified 15 days ago when Minister Di Tella reported that, through the Peaceful Use Program, Argentina will cooperate with important U.S. private companies in the field of nuclear investigation. This new position also convinced Di Tella that over the next few months the Applied Research Institute (INVAP) will sign a similar agreement with the governments of France, Italy, and Japan.

In other words: The Peaceful Use Program increases, for the United States, the importance of developing the Argentine nuclear program in the light of the changes occurring in defense and security in the industrialized world.

In nuclear matters, Argentina is now "trusted" by the United States. For several reasons, this position offers extra benefits. This is shown in two paradoxical events, which must be discussed:

The U.S. State Department has reported that the decision by the PRC Government to sell a 300 megawatt reactor to Iran is "very regrettable" because the reactor could be used to develop nuclear weapons which would then be sold to Third World countries. This was officially reported by spokesman Richard Boucher on 12 September.

As expected, the PRC Government officials played their role of "protagonists." Just one day after the U.S. Government opinion became known, the official XINUA Agency stated, in an article datelined Washington, that "the United States is an arrogant country because it objects to nuclear cooperation between the PRC and Iran which has clearly peaceful goals." The article added that "White House and State Department leaders continue to believe that the PRC Government is planning a nuclear war with the West."

At approximately the same time—or to be more precise, on 20 September—Rio Negro Governor Horacio Massaccesi signed an agreement in Egypt, through which the INVAP and the U.S. Atomic Energy Authority agreed to build a multipurpose nuclear reactor in northeast Egypt, 50 km from Cairo, to replace one built in the 1950's by the

former Soviet Union when then President Gamal Abdel Nasser was the Soviets' firmest ally. For this the Rio Negro Government will receive \$90 million before the end of the year. The Egyptian Government has already made an advanced payment of \$20 million.

While this operation—which was restricted only to Cairo—was being conducted, Minister Di Tella negotiated on 29 September an agreement for nuclear cooperation with his French counterpart Roland Dumas. One day later the Argentine Foreign Ministry released a communique in support of Di Tella's negotiations. It said: "Argentina's support for international commitments that seek to prevent the proliferation of nuclear weapons of mass destruction allows our country to continue to develop a competitive international nuclear industry."

Brazil has begun to look with certain distrust at the nuclear agreements signed abroad by Argentine officials. Brazilian Rear Admiral Othon Pinheiro da Silva, Navy chief of staff and director of the Nuclear Research Center, said a few days ago [as published] in an article published in the Brazilian *O GLOBO* newspaper: "Brazil should be prepared to defend its nuclear development and even to back up its diplomacy." He also stressed that the Brazilian Armed Forces should safeguard the national borders and the country "from foreign companies that want to exploit sensitive issues."

Other military circles concur. Brazilian Brigadier Hugo de Oliveira Piva, director of the Brazilian Air Force Institute of Advanced Studies, is annoyed because suspended President Fernando Collor de Mello signed last July with Argentine President Carlos Menem an agreement allowing reciprocal inspections of each others' installations to guarantee the non-existence of secret atomic programs in Argentina and Brazil.

His main concern is, however, that this agreement considerably harms the unfortunate "Military Nuclear Program" which seeks to master the complete nuclear fuel cycle for military purposes.

This "hard" attitude of the military chiefs was discussed by the defense committee of the Brazilian Senate. Senator Jarbas Passarinho prepared a draft bill proposing that the "Military Nuclear Program" be kept "secret" and without any international control. He also proposed a "broader" nuclear cooperation agreement with Germany.

To this we must add that a bill was sent last month by the Brazilian Physics Society to Congress recommending the construction of new nuclear reactors under the control of the Navy, Army, and Air Force.

The most important part of these issues, which must be mentioned, are Brazil's 30 million [currency not specified] and the 19 advisers from the Brazilian National Security Council who are working in Baghdad with experts of the Iraqi Nuclear Center. Brazilian scientists are there helping to construct a long-range missile capable of transporting nuclear warheads and an "air-to-air" missile in exchange for Iraqi technology and prototypes to enable the manufacture of missiles in Brazil.

The result of all this is that the Argentine Government should remain alert to preserve its strategic interests, with its eyes firmly fixed on a balanced nuclear development in the Southern Cone.

Deep-Sea Fishing Agreement Signed With EEC *PY3011211492 Buenos Aires Radio Nacional Network in Spanish 1500 GMT 30 Nov 92*

[Report by Silvina Martinez Porta]

[Text] Argentina and the EEC signed at noon today an agreement on deep-sea fishing, the first one to be signed between the EEC and a Latin American country. This agreement is also the first one to reflect the spirit of the so-called second generation agreements, which contemplate the establishment of joint ventures between EEC and Argentine ship-building companies using ships sailing under the EEC flag.

The agreement was signed by Argentine Foreign Minister Guido Di Tella and Manuel Marin, deputy chairman of the EEC committee in charge of the fishing policy. President Menem also attended the ceremony.

The most salient aspects of this agreement are the establishment of stable and lasting relations between EEC and Argentine ship-building companies and a framework for scientific and technological cooperation. It will enable the EEC to significantly reduce the idle capacity of the EEC fishing fleet and to have access to large fisheries.

Di Tella addressed the audience of EEC ministers and ambassadors attending the ceremony, which took place at the White Hall of Government House. Di Tella stated that the fishing industry has expanded greatly over the last three years.

[Begin Di Tella recording] I believe that once again, sound policies have yielded positive results. We have always supported this general principle in theory, but now that we see it come true we feel much encouraged. I would like nonetheless to underscore the fact, which Mr. Marin has also mentioned, that we do not want to embark on fishing activities that ignore the preservation of natural resources. We are very much interested in that, first and foremost because it is part of the environmental protection policy, which you, Mr. President, and the government have followed in all spheres, especially in the tapping of fisheries. Without the preservation of this natural resource the road ahead of us would be bleak. If we opt for preservation, the future is unlimited and will benefit all mankind and the parties involved in the region.

Another subject in which we have been and will be extremely cautious is the desire to implement a fishing policy without political objectives. We have carefully discussed this with the EEC so as to eliminate any political implications in order to reach a good business deal for the two parties. That is what we wanted. We want a permanent and lasting business. [end recording] The agreement will regulate fishing relations between the two parties for five years, and if there are no objections it will be automatically renewed for two years. It will also allow 70 EEC ships to

fish in the area, and the joint ventures that will be created will receive EEC financing. The EEC will also grant commercial concessions to Argentina. The agreement includes mutual scientific and technical cooperation to promote the preservation and exploitation of national resources.

Following the ceremony, Marin gave a news conference in the Government House press room. When asked if the United Kingdom, as a permanent member of the EEC, could veto the agreement on account of the current situation in its relations with Argentina, Marin said:

[Begin Marin recording] The fishing agreement pertains to the EEC whose member countries are submitted to a qualified majority system, that is, they are submitted to the rule of unanimity. Consequently, your question simply reflects a theoretical case. Anyway, I must point out that I do not at all think that the United Kingdom should be willing to veto this kind of agreement between the EEC and Argentina. [end recording]

Marin was decorated by President Menem with the order of the Great Cross of General San Martin.

BRAZIL

Collor's Industrial Patent Bill Remains Pending in Congress

PY1611215292 Sao Paulo O ESTADO DE SAO PAULO
in Portuguese 15 Nov 92 Economic Section p 5

[Article by Teresa Cardoso]

[Text] Brasilia—Congressmen concerned with the need to promulgate a new law on industrial patents currently hold two beliefs. This is an urgent matter for Brazil, but the Legislative Branch will not quickly pass a bill to regulate it. Deputy Sandra Starling (PT-MG) [Workers' Party-Minas Gerais] presides over the special commission charged with the matter. For a month she has been trying to meet with President Itamar Franco to ask him to replace the bill sent by Fernando Collor to Congress.

Nervous by the governmental delay to regulate the matter, Deputy Roberto Campos (PDS-RJ) [Social Democratic Party-Rio de Janeiro] has warned: "This is similar to the reservations held regarding informatics." Franco's silence on the issue is the main evidence that the bill will not be voted on anytime soon. Starling believes that Franco will easily accept her proposal to send another bill to Congress.

The forum of the Science and Technology Secretaries of the States also advocates this proposal. It strongly opposed Collor's bill and two additional bills proposed by Deputy Ney Lopes (PFL-RN) [Liberal Front Party-Rio Grande do Norte]. The scientific community proved that the three projects seek to protect foreign capital to the detriment of local industrial development.

Campos said: "These people are playing with fire to the effect of protecting a small number of craftsmanship

industries." He warned that "if Franco replaces the bill, he will underestimate the international community in keeping Brazil separate."

Campos referred to the fact that the U.S. Government suspended retaliation against Brazil because Collor promised to send to Congress the bill regulating industrial patents, which has awaited a congressional vote for one year now. Campos said: "If we continue to not take action to approve this bill, Bill Clinton will have no other alternative."

But this is not the Brazilian Government's opinion, according to the reaction of Deputy Roberto Freire (PPS-PE) [People's Socialist Party-Pernambuco]. He thinks that if Clinton takes retaliatory measures, this will just be the result of the Democratic Party's protectionist tradition. Disregarding the risk of retaliations, Starling said that she had confidence in U.S. Vice President-elect Al Gore, a well-known environmentalist. She thinks that after the Rio-92 Conference, biodiversity became more important than the industrial patents.

More than 500 amendments have already been submitted for the bill that should be approved before the end of the year. Nationalists believe that the current law is a violation because it allows for procedures and products of the food, chemical, pharmaceutical, and biotechnological industries patented abroad to be accepted in Brazil. PFL supporters already have warned that without recognizing or paying for the patent rights, Brazil will have no chance at all of attracting international investors.

Reluctance To Ratify Environmental Agreements Criticized

PY2411193292 Madrid EFE in Spanish
2133 GMT 23 Nov 92

[Text] Brasilia, 23 Nov (EFE)—Brasilia Environment Secretary Washington Novaes today, 23 November, criticized the absence in Brazil of an environment policy and a desire to ratify the Biodiversity and Climate Changes Treaties achieved during the Earth Summit.

"There is no policy or program to fulfill those agreements," Novaes told EFE. Novaes is an important authority in environment issues in this country.

Novaes added that six months after the UN Conference on Environment and Development (or Earth Summit), the Brazilian Foreign Ministry has not yet sent the two agreements to Congress for their ratification.

The two international treaties, which received the support of the overwhelming majority of the 178 governments attending the Earth Summit, will only be valid after being ratified by the national congresses.

The Biodiversity Treaty will be in effect only if approved by at least 30 congresses, while the Climate Changes Treaty must be approved by 50.

"This apathy by the Brazilian Government is worrisome because Brazil was the host country of that conference, and as such it has a special responsibility," Novaes said.

According to Novaes, "it is of no use to talk about sustainable development, that the agreements adopted in the Earth Summit will be respected, if when the time comes for their implementation, nothing is done."

Novaes added that a project on the Industrial Property Code, which is being debated in congress, interferes in the clauses of the Biodiversity Treaty, which admits the sovereignty of countries to benefit from the scientific progress resulting from their biological resources.

According to Novaes, the project on an Industrial Property Code recognizes reported rights of multinational pharmaceutical and food companies over the exploitation of natural resources that belong to the Brazilian state.

The science and technology secretaries of the 27 Brazilian states and the Brazilian Society for the Progress of Science, as well as the federal administration organizations such as the Brazilian company for agriculture and livestock research, have recommended to the government withdrawing the proposed code project from congress.

According to Novaes, the lack of an environmental policy is obvious among the junk representing the national meteorology network, in which much no longer operates.

Criticisms regarding the lack of political willingness on environmental issues were also supported by Mary Alegretti, president of the Brazilian Institute for Amazon Studies.

"Some concrete initiatives are being made outside Brazil concerning the destination of resources provided for in Agenda 21, but here we are behind the times," Alegretti said.

This week Brasilia is hosting the Inter-Parliamentary Conference on Environment and Development, in which more than 150 senators and deputies from 29 countries are participating, analyzing common formulas to put into effect the resolutions achieved at the Earth Summit held in June 1992 in Rio de Janeiro.

Conference To Urge U.S. Signing of Biodiversity Treaty

PY2511125592 Brasilia Radio Nacional da Amazonia Network in Portuguese 0900 GMT 25 Nov 92

[Text] Senator Ruy Bacelar has reported that Brazil will suggest at the plenum of the Inter-Parliamentary Conference on Environment and Development that a message be sent to U.S. President-elect Bill Clinton requesting that he sign the Biodiversity Treaty.

[Begin Bacelar recording] The Biodiversity Treaty was signed by more than 100 chiefs of state. It will remain open for some time, awaiting the signatures of more presidents. [end recording]

Senator Bacelar added that the important economic power of the United States cannot be disregarded in seeking solutions to environmental problems. This is why the conference will attempt to have the new U.S. president sign the treaty.

The subjects discussed at the Inter-Parliamentary Conference on Environment and Development concentrated to a degree on demanding compliance with the resolutions of the Earth Summit [UN Conference on Environment and Development].

Most of the speeches made during the conference stressed the need to pass on from a stage of speechmaking to a stage of concrete action with regard to sustainable development.

Three representatives spoke on this subject during the 24 November session.

Costa Rican Deputy Bolanos asked of his colleagues from 50 countries, who are meeting in the Ulysses Guimaraes Convention Center in Brasilia, that all their parliaments rapidly issue laws to complement the international conventions agreed upon at the Earth Summit.

Italian Deputy Testa said his country favors creating a tax on energy, which should be paid by wealthy countries to help developing countries preserve the environment.

Chilean Deputy Diaz Sanchez suggested holding an international conference to reach an agreement establishing a route for the transportation of radioactive products. He mentioned the recent case of a plutonium shipment sent from France to Japan, in which the route, the weight, and the degree of risk from the product were not revealed.

HONDURAS

State Forestry Agency Blamed for Deforestation

93WN0116A Tegucigalpa EL HERALDO in Spanish 22 Sep 92 p 30

[Text] Esquipulas del Norte, Olancho—Four companies engaged in lumber operations are about to convert this northern municipality and its adjoining communities into a desert, according to charges made by residents.

However, they claim that the ones really responsible for the tragedy are the authorities of the Honduran Corporation for Forest Development (Cohdefor). The latter has turned over 70,000 hectares for the companies' operations.

Amado Reyes Martinez, the community leader, who made the complaint on behalf of all the section's active members, maintained that the situation is already critical, especially since there is no civilian nor military authority stopping the accelerated destruction.

Reyes Martinez expressed the view that soon the entire section comprising the municipality of Esquipulas del Norte will become a desert, due to the intensified desertification.

To reinforce his assessments, he explained that, every day, about 30 drays and trucks loaded with wood of all species, primarily mahogany in board feet, are leaving for various parts of the country.

As for those responsible, he reported that they are four lumber companies owned by the businessmen Luis

Velasquez, Alejandro Carcamo, and Rafael Ramos. The latter is the father of the deputy representing Olanchito, Abraham Bennaton Ramos.

He claimed that the plunderers have been involved in this destructive activity for many years, in collusion with the Cohdefor authorities, and noted that this agency is the one least concerned about protecting the environment.

He continued: "The most deplorable part of the situation is that the Esquipulas municipal treasury is receiving no profit of any kind; therefore, it will be left with only disaster as a memory."

In conclusion, Reyes Martinez gave notice that, in view of the indifference shown by Cohdefor and other civilian and military authorities, the zone's residents will adopt their own protective measures, including a visit to President Rafael Leonardo Callejas.

Yojoa Lake Suffers From Contamination, Deforestation

93WN0116B San Pedro Sula *TIEMPO* in Spanish
12 Oct 92 p 8

[Text] San Pedro Sula—According to the vice president of the Eco-Lago Foundation, William Kivett, the landholders who own properties in the Yojoa Lake basin are becoming convinced of the need to conserve the forest, so as to preserve the life of the lake.

Mr. Kivett mentioned an agreement recently signed with that ecological foundation by a landholder named Vaquero, who owns 180 manzanas in the section known as Punta Gorda, on the lake's shores.

According to Mr. Kivett, whereas some are making efforts to save the lake, others are bent on destroying the forest, to convert the pine trees into firewood. The latter is intended to supply the ovens of the San Pedro Sula bakeries.

Based on estimates made by the ecological foundation, approximately 2 million logs leave the lake basin woods each month, going to the San Pedro Sula bakeries. It is hoped that this situation will be brought under control with the aid provided by the Armed Forces through Colonel Roberto Estrada, commander of the Special Forces Battalion assigned to furnish security for the "Francisco Morazan" hydroelectric plant.

Kivett stressed that many persons engaged in cutting firewood abuse the permits granted them by the Honduran Corporation for Forest Development (Cohdefor) to thin the pine woods. However, they are cutting an expanse exceeding that authorized, removing the kindling by night or at dawn.

As for fishing on the lake, the environmentalist reported that the ban is still in effect on the use of trammel nets and spears to catch fish. Also in force is Resolution 006, of 18 August, issued by the Secretariat of Natural Resources, which bans the catching of bass weighing from 2 to 10 pounds, because this is a highly prolific fish. The ban will be in effect for a year, to ensure the reproduction of that species so much in demand among fish consumers.

Mr. Kivett claimed that there is encouraging news about the lake's protection from the contamination to which it has been subjected because, within the next three months, it is expected that a study being prepared by the Secretariat of Communications, Public Works, and Transport will be completed. That study will dictate methods for preventing contamination.

At present, dining rooms, hotels, and private residences on the lake shore are discarding all kinds of waste in its waters, while farms raising all types of crops on which agrochemicals are used are contributing their fatal share to the lake's waters.

In order to protect the productive capacity of this natural reservoir, its flora and fauna, and its scenic beauty, the lake basin was declared "Protected Zone No. 5," through Decree No. 71 of 8 December 1971. The latter, in turn approved Resolution No. 400 of 6 October 1970. The zone covers a total area of 346.28 square km.

PARAGUAY

Missing Radioactive Elements Cause Concern

PY1611202192 Asuncion *NOTICIAS* in Spanish
16 Nov 92 pp 6, 7

[Excerpts] While toxic waste containers are being found in the Chaco, in Asuncion there are 107 radioactive sources [fuentes radioactivas] (cesium), some of which are believed to have disappeared from the Hospital for the Treatment of Cancer and Burns in the town of Aregua despite denials by Dr. Andrada, the director of the hospital. Dr. Andrada said that the radioactive sources are being kept in a bunker [preceding word in English] at the hospital. The Atomic Energy Commission, which is headquartered in Vienna, is concerned about this and has sent four experts to investigate.

The 107 radioactive sources are used in the treatment of cancer of the uterus. [passage omitted]

The cesium needles [agujas] were purchased in 1980 from the English company Amersham. They were originally stored at the Cancer Institute and some were lost while being transported to Aregua.

So far the needles have not been used.

If this situation is confirmed, it might pose a serious radioactive danger. This was one of the major concerns of the four experts who were sent by the Atomic Energy Commission of Vienna to our country in August 1991.

The experts tried to investigate the route followed by the cesium needles. They clashed, however, with the secrecy of the members of the Atomic Energy Commission at that time.

The experts also tried to contact executive branch members, but again met with obstacles that prevented them from talking about the subject with valid government interlocutors.

The experts were sent to study the cases of Paraguay, Chernobyl, El Salvador, and Goiania. They sent their report to our Foreign Ministry in February 1992. In it they express concern about the situation in Paraguay in the area of radioactivity. [passage omitted]

Argentina 'To Resolve' Pilcomayo River Issue

*PY1811192792 Asuncion NOTICIAS in Spanish
18 Nov 92 p 18*

[Text] Foreign Minister Alexis Frutos Vaesken has stated that the Paraguayan Foreign Ministry received yesterday an Argentine Government note in which it formally pledges to resolve the diversion of the Pilcomayo River which, for the most part, now flows into Argentina.

Frutos Vaesken explained that one possible solution currently under discussion is to partially block the channel on the Argentine side so that the river will run to the Paraguayan side and thus fairly and rationally divide the water.

He added that the note of commitment meets with the approval of the Paraguayan Government and that the practical steps to resolve this problem will be discussed at a tripartite meeting among Paraguayan, Argentine, and Bolivian representatives.

Frutos Vaesken further stated that Argentina and Paraguay will finance a temporary solution. From there, further negotiations will be geared to finding a permanent solution.

He explained that the Pilcomayo River might disappear within the next 10 years because the sediment that is carried downstream from Bolivia is silting up the river bed at the rate of seven to 10 km every year.

He added that the situation is becoming critical. Reliable reports state that there are only 86 km of river left. This means that before 2003 the natural border between Paraguay and Argentina could disappear.

REGIONAL AFFAIRS

Expert Forecasts Increasing Arab World Water Shortages

93WN0074A London AL-HAYAH in Arabic
17 Oct 92 p 13

[Report from Dubayy: "Arab World Threatened With Water Shortages; Water Available Per Capita Is 7 Times Less Than World Averages"]

[Text] An expert estimates water reserves in the Arab World at about 7.734 billion cubic meters a year. He estimated the volume of renewable water at about 338 million cubic meters a year, or 7 percent of world renewable water resources.

Dr. Idris Muhammad Idris, water resources expert at the Arab Fund for Economic and Social Development, said that while the Arab world covers 9.4 percent of the world's area and accommodates 4 percent of the world's population, the per capita share of water resources in the Arab World as whole amounts to 1,750 cubic meters a year, or seven times less than the world average of 12,900 cubic meters a year. He pointed out that per capita averages vary among Arab countries from a high of 5,200 cubic meters a year in Iraq to a low of 110 cubic meters a year in Kuwait.

Dr. Idris, in a paper presented at the first Gulf Water Conference in Dubayy last week, said that as serious as the water shortage is in the Arab region, the more complicated issue is the irregularity of water feeds, flows, and rainfalls in the same year and from one year to another. He forecast that water shortages would worsen in the long term because local, regional, and worldwide environmental studies, as well as century-long records, point to climatic changes and to alternating dry and rainy cycles of five to 10 successive years each. One such cycle has gripped the Arab World since early this decade.

Dr. Idris added that the demand for water used in drinking and other civilian purposes will rise sharply in the future and that total consumption in the Arab world will rise by about 86 percent, from 7.208 billion cubic meters a year in 1985 to 13.423 billion cubic meters a year in 2000. He added that demand for fresh water will be as high as 36.019 billion cubic meters in the year 2030, for an increase of more than 400 percent over 1985.

Arabian peninsula states, which include Saudi Arabia, Kuwait, Bahrain, the United Arab Emirates, Qatar, Yemen, and Oman, are predicted to require 5.4 million [as published] cubic meters in the year 2030. By comparison, demand in the Arab Maghreb, which includes Algeria, Morocco, Tunisia, Mauritania, and Libya, will be at 11.4 billion cubic meters. Demand in the Arab Levant, which includes Syria, Iraq, Lebanon, Jordan, and Palestine, will be at 8.1 billion cubic meters, compared with water needs in the year 2030 for 11.1 billion cubic meters in the Middle Region, which comprises Egypt, the Sudan, Somalia, and Djibouti.

Demand for irrigation water will rise by about 13.3 percent, from 2,966 billion cubic meters in 1985 to 336.2

billion cubic meters in the year 2000. Demand in the year 2030 will rise to 377.5 billion cubic meters, for an increase of 27 percent over 1985.

Demand for water for industrial applications will rise at an annual average of 4 percent, from 1.3 billion cubic meters in 1985 to 22.3 billion cubic meters in the year 2030, assuming that average industrial demand will rise from 7 cubic meters per capita in the year 2025 to 42.4 cubic meters in the year 2030.

Idris said that the Arab nation lies over arid and semiarid regions (desert and semidesert) and that a small segment of it is influenced by the Mediterranean climate, while the remainder is mostly dry. This, in turn, influences the median rainfall, the flow of surface waters, and subterranean reserves, which tend to be irregular. Because of the scarcity of surface water, except in areas adjacent to major rivers, such as the Nile, the Tigris, and the Euphrates, as well as areas that are adjacent coastal regions and seasonal rivers, most water requirements in the Arab world are met through the utilization of subterranean waters, which are frequently the only water source. Underground water resources are present to varying degrees in most Arab regions and may be the size of great aquifers with huge reserves, such as those found in the Saharan regions of Libya, Algeria, Tunisia, and the Arab peninsula.

Some Arab states, because of the scarcity of water resources in certain Arab regions, have resorted to desalinating seawater and treating sewage and industrial wastewater in order to create nontraditional water resources.

It is possible therefore to classify the water resources currently utilized in the Arab nation as traditional and nontraditional. We will not delve deeply into the nontraditional types because they contribute little to the development of the Arab world as a whole, even though they are important to certain Arab states as a vital source of potable water.

It is a given that traditional sources are either finite or renewable. Renewable resources are those that can be tapped for long periods without an appreciable drop in their level, as long as the extraction rate does not exceed the feeding rate. Finite resources are those whose utilization will result in declining reserves.

Examples of renewable water resources are those that lie along the eastern and southern shores of the Mediterranean, where rainfalls that average between 400 and 600 mm feed those sources and periodically replenish their water supply. Most finite water resources are found at the heart of the Great Sahara and the Arab peninsula, which cover extensive areas and have huge water reserves but a very low rate of replenishment. The feeding of those resources, when it takes place at all, is minute compared to the size of the underground reserves, some of which are already being utilized to the degree of depletion, especially in the eastern region of the Arab peninsula, thereby accelerating the rate at which water quality is deteriorating.

He pointed out that the Arab states have become aware of the threat they face in far as available water resources are

concerned and are diligently surveying their water resources in order to be able to deal with periods of severe dryness like those that vast regions of these states experienced in the early 1960's and in the early 1980's, prompting the implementation of numerous water-use projects to meet society's demand, which has accelerated in the past three decades.

He said that meeting the demand for water for various applications has not been pursued in a proper scientific fashion because that demand, and the water crises that occurred, were usually met by tapping underground reserves without consideration to their long-range capacity, with many resulting negative effects on Arab subterranean basins, such as low water levels, poor quality, and the infiltration of saline water, specially into smaller reservoirs and those along the seashore. This has caused worry over the future of such reserves.

Dr. Idris pointed out in his paper that water sector planning has been modest until recently. The United Nations proclamation of the International Decade of Water and Sewers enticed developing nations to plan for the 1980's. By 1983, some 60 nations had made plans for the decade, but those plans varied from one country to another in their scope. Most were impractical and sometimes amounted to no more than wishful thinking because the investments needed for developing that sector far exceeded the entire amounts of external financing available to all of the sectors. The development plans ignored infrastructure aspects, the development of human resources, and self-financing. Those issues represent major obstacles and bottlenecks on the road to develop sector services.

He added: "We are all aware that the national plans for the water sectors are among the most important requirements for the effective modernization and development of the sector. A major function of the plans is to address high policy matters, define infrastructure needs, set priorities, and prepare investment and operating budgets. Such plans are to the basis for dialogues among creditor and beneficiary countries leading to mutual commitments to be agreed upon in light of stated strategies and specific work programs that would help credit sources develop and finance agreed projects and development objectives. A development plan for this sector must cover all related issues and must emphasize social, economic, and infrastructure aspects in order to raise state interest in accelerated development and improve the framework of public policies and infrastructure to ensure better sector development."

Idris emphasized that plans for water sector development must be realistic and must reflect national policies and priorities and not merely an implementation of aid and credit stipulations by funding sources. Such plans must therefore be in symmetry with available resources, must be part of integrated investment programs, and must reflect government development policies and related priorities.

He said that the major obstacle to proper planning is either the lack of statistics needed to properly estimate future needs, disparity among various agencies of the water and

sewer sector, or both. Balanced planning requires quantitative and qualitative knowledge of available resources and their geographic distribution as well as information on current as well as future requirements.

It is noticed in most of our countries that while information is scattered among various agencies, there is no coordination among them. This makes it difficult for any one agency to gather and verify such information over and above its assigned responsibilities. The issue of statistics and information therefore needs to be fundamentally addressed in order to facilitate the planning process, avoid depleting water and fiscal resources, and ensure the proper utilization of limited human resources."

He added: "For such a plan to be practical, we must consider available resources—specifically natural resources, human resources, and financial resources. A plan can not be expected to realize its objectives and implement consequent projects unless it is in equilibrium with those three elements. The lack of equilibrium would have such negative effects as the nonrealization of citizen aspirations expressed in the plan and lack of confidence in government and government policies. This, in turn, would make it difficult to take anything seriously and to attract the human resources needed to help realize plan objectives.

"We notice in this regard that development plans in many Third World countries are not originally intended to accomplish their objectives and implement their projects. Rather, they are simply meant for local consumption and momentary gains. We also notice that in many instances, the projects that are actually implemented are not based on adequate preplanning, but are undertaken either in response to political pressure by influential population groups or to deal with a festering crisis."

Idris emphasized that "the first and most important step in putting together a balanced and realistic water development plan is to identify available usable water sources, evaluate them qualitatively and quantitatively, and define ways for optimum utilization that would ward off depletion and preserve long-term quality. This, unfortunately, has not gotten attention except in recent years when officials became aware of the qualitative and quantitative deterioration of water resources. This deterioration was brought about in several ways, especially, but especially because the overutilization of available resources caused the depletion of reserves and the infiltration of unsuitable water into available resources, and underground reservoirs in particular. Another factor was the improper disposal of industrial and household waste water into water resource channels, rendering them polluted and unfit for consumption.

"It is to be pointed out at this point that the current generation is differentiated by two characteristics—man's unlimited capacity for building and for innovation, counterbalanced by his great capacity for destruction and devastation. Our generation is also characterized by proliferating needs that have driven man into shortsightedness when utilizing natural resources, causing

imbalances in the natural order of things and in the ecological system as manifested in the pollution of water resources."

He added that "planning and developing water resources would depend first on the human factor, especially considering that the scope and impact of the water resources problem will grow in the future as demand increases and available resources become scarce. This requires deeper concern and better understanding of water resources and mandates long-range water utilization planning appropriate to the scope of the problem, its stage of development, and anticipated future crises. This would ensure that solutions are tailored to the situations at hand. It is needed therefore to survey trained resources in such major fields as planning, study, design, implementation, operation, and maintenance. Despite changes in the ability of developing countries to implement water projects, all fields suffer shortages of qualified personnel and efforts to attract them remain lax. It follows, therefore, that human resources must be nurtured, trained, and given due care and priority in the technical, administrative, and financial fields."

He emphasized that even in the presence of human and natural resources, the scope and objectives of any plan are a function of available financial resources and here is where being realistic is important. A plan has to be feasible in light of the funds that can be raised from domestic and foreign sources. Certain countries offer plans that can only be described as wishful thinking because they are not rooted in reality and are predestined to languish. Since the size of foreign financing can not be accurately determined at the time the plans are drawn, certain countries have taken the empirical course of defining projects that must be implemented in order to achieve planned objectives. Then, in light of domestic and foreign financial resources that can be realistically attracted, and within the limitations of the future ability to repay those funds, projects are classified into two groups—the first group has high priority and is funded with assured resources. The second group is implemented if and when additional financial resources become available during the plan years.

This technique has proved effective, especially in countries with limited financial resources. It also shields those countries from accumulating foreign debt, which is the most pressing problem the third world faces today. Generally speaking, it is not too difficult to secure needed funds if planning has been sound and absorptive capacity has been given due consideration.

Idris concluded by calling for prompt action to make potable water available in regions more prone to the risk of water shortages and to construct and develop sufficient water resources to insure the needs of social and economic development.

He also called for training and developing human resources and water facilities in order to raise the efficiency of water management. He advocated the exchange of information and the procurement, assimilation, and utilization of modern water resource technology. He additionally called for a joint information center in the form of

an water information bank that would support national, regional, and international field studies for the identification and utilization of water resources. He also called for observing environmental considerations when implementing water projects.

BANGLADESH

Sending of Contaminated Fertilizers From U.S. Condemned

BK2911151592 Dhaka THE DAILY ITTEFAQ
in Bengali 15 Nov 92 p 2

[Editorial: "Why this toxic waste?"]

[Text] It was reported by the press last Friday [13 November] that an American company sent chemical fertilizers contaminated with poisonous industrial waste to Bangladesh. The total amount of this fertilizer is 3,150 tons, of which 1,000 tons is poisonous industrial waste. Reports further said that one-third of the total fertilizer has already been used on land, while the remaining two-thirds is now in the hands of dealers and farmers.

It may be mentioned that this information was not provided by a government or nongovernment agency of Bangladesh. It was disclosed by Anne Leonard, representative of Greenpeace—an international pressure group on environmental affairs. She recently came to Bangladesh from the United States and conducted a survey in the Rangpur-Dinajpur region with the assistance of a nongovernmental organization and divulged the information at a press conference last Thursday. She further revealed that the U.S. Government has itself instituted court proceedings against the company on the charge of sending the poisonous waste. It may be noted that various world environmental organizations are currently very active and vocal against indiscriminate disposal of toxic industrial waste. They are floating organizations throughout the world and striving to make the people aware of this issue. They believe in scientific and industrial development, but not at the cost of nature and the environment. Despite the active steps by these environmentalists, many companies unable to dispose of industrial waste in their own countries have in the past dumped it in poor African countries. Of course, they give money to these poor countries.

But when these incidents were leaked, strong reactions were registered throughout the world, including Africa. It goes without saying that this incident of dumping Western industrial waste in Bangladesh is a novel one. The waste was sold after mixing it with fertilizer. The concerned company should be punished by the international court for committing such a grave offense. With a loan provided by the Asian Development Bank, this poor country has purchased poison through fertilizer from that company. Perhaps it bought the fertilizer from this company at the suggestion of the Asian Development Bank. Instead of increasing the fertility of land, it will destroy the land, crops, water, and fish. We feel that the Asian Development Bank cannot evade its responsibility in this connection either.

The Greenpeace representative came to Bangladesh from the United States to warn the Bangladeshi Government and the people about this dreadful issue. The U.S. Government has also filed suit against that company on the basis of specific allegations. The Bangladeshi Government and people would never have known about this incident of dumping toxic waste through deception had Anne Leonard not come to Bangladesh and exposed the matter. Now the question is why the Bangladeshi Embassy in the United States did not know about the incident when Greenpeace was aware of it? It is expected that Bangladeshi missions abroad will work for the interest of the country and its people. The government should check this issue with the Foreign Ministry. Otherwise, the people of this country will have to accept poisonous goods like industrial waste, which is very unfortunate.

Experts Warn of Global Warming Threat to Country

*BK1611115592 Hong Kong AFP in English
1131 GMT 16 Nov 92*

[Text] Dhaka, Nov 16 (AFP)—The head of an institute of Bangladeshi experts warned Monday of the potentially great threat that even slight global warming would pose to their impoverished South Asian nation of 110 million people. With its "low, flat and deltaic coast line," Bangladesh would suffer a multitude of adversities from a slight change in sea level caused by global warming, said Mosharraf Hossain Khan, a retired rear admiral and former chief of the Bangladesh navy.

Khan, now heading the non-governmental National Oceanographic and Maritime Institute, told a regional workshop that any drop in productive land from erosion, storms or a rising sea level would be disastrous for Bangladesh, which is near the top in world population density and near the bottom in per capita income.

The four-day workshop, attended by representatives from India, Pakistan, the Maldives and Sri Lanka, was opened earlier by Bangladesh President Abdur Rahman Biswas. Biswas called for the mobilisation of resources and the adoption of appropriate technology to minimise the impact of global warming on the people of South Asia's coastal regions.

The spectre of climatic change and a corresponding sea level rise have the potential to devastate many economic activities and even threaten the survival of many people in the region, he said.

Biswas pointed out that southern Bangladesh, along the Bay of Bengal, "is highly prone to frequent natural disasters like cyclones, storm surges, coastal erosion and floods."

Bangladesh's worst cyclone in decades battered the southern coast in April 1991, leaving as many as 139,000 people dead and causing widespread destruction.

PAKISTAN

Pakistan Joins Montreal Treaty on Ozone Protection

*BK2911115692 Islamabad Radio Pakistan Network
in Urdu 0200 GMT 29 Nov 92*

[Text] Anwar Saifullah Khan, federal minister for environment and urban affairs, announced Pakistan's decision to join the Montreal Treaty while attending the treaty countries' meeting in Copenhagen, Denmark. The Montreal Treaty is an international agreement on the protection of earth's ozone layer. Addressing the meeting, the federal minister stressed the need for the large-scale involvement of developed countries in ensuring environmental cleanliness.

RUSSIA

Russian Scientists Discuss Ecology in Islamic World

LD2011212892 Moscow ITAR-TASS in English
1623 GMT 20 Nov 92

[By ITAR-TASS diplomatic correspondent Sergey Postanogov]

[Text] Moscow November 20 TASS—A working session, devoted to the "Environment and the Islamic World", held here today, has discussed some problems of the Moslem world's ecology from the socio-political standpoint. The meeting, sponsored by the People's Academy of Culture and Universal Human Values, was attended by scientists from the Oriental Studies Institute of the Russian Academy of Sciences, the Institute of World Economy and International Relations, and the Institute of Geography.

It was stressed at the meeting that the ecological problem was becoming increasingly important nowadays, and that the vital importance of its solution was growing daily. Aware of the mounting role of Moslem countries in the world, their rapid industrialisation and increasing share of production, and, consequently, the growing threat of environmental pollution, the scientists have stressed the importance of seeking ways to resolve ecological problems in the Islamic world on the basis of the political, social, cultural and religious ways of life that now exist there. The meeting stressed the need to make use of social, legal and economic instruments to prevent the environment's further pollution.

Plans are afoot to hold an international conference on "Islamic approaches to problems of the contemporary world" in Moscow in the Autumn of 1993. It will discuss, in particular, problems of ecology.

Delegation to Interparliamentary Meeting Urges End to Nuclear Tests

LD2711115392 Moscow ITAR-TASS in English
0906 GMT 27 Nov 92

[By ITAR-TASS correspondent Andrey Kurguzov]

[Text] Brasilia, November 27 (TASS)—"The cessation of tests of nuclear weapons will make a tangible contribution to the improvement of the ecological situation on the planet," deputy chairman of a committee for ecology and the rational use of natural resources, Aleksandr Barsukov, said here on Thursday. Barsukov leads a Russian delegation to the Interparliamentary Conference on the Environmental Protection and Development, which ends in the Brazilian capital on Friday. Barsukov told ITAR-TASS that the Russian delegation had suggested to include a provision on the cessation of nuclear tests in the text of the forum's final declaration.

"We also suggested to parliamentarians to revise an article on the inviolability of private property, on which an American delegation insisted at the World Ecological Conference in Rio de Janeiro, since it creates many

invisible obstacles on the way to the implementation of the programme of environmental protection and stable development," Barsukov emphasised.

"Russia, which represents states with a transitional economy, proposed to the participants in the conference to include these countries along with the developing ones in the number of states which need the support of industrially developed countries to resolve their ecological problems," Barsukov said.

Yablokov Addresses CIS Ecological Journalism Forum

93WN0134A St. Petersburg CHAS PIK in Russian
No 44, 2 Nov 92 p 3

[Article by Viktor Tereshkin, Moscow-St. Petersburg: "The Russian Military-Industrial Complex Was Preparing an Explosion on Novaya Zemlya in October. Therefore It Successfully Blocked Articles About the Moratorium That Was Signed by Bush"]

[Text] That was the statement made by Aleksey Vladimirovich Yablokov, advisor to the President of Russia for ecology and public health, speaking on 20 October in Moscow to the participants of the international seminar "Ecological Journalism in the CIS Countries."

"This was an information blockade that was so skillfully prepared that I had to ask foreign information agencies for help," the President's advisor almost shouted. "And if the blockade had lasted only a few more days, our military men would have produced an underground nuclear explosion, the moratorium would have been broken, and this senseless race would have begun again. Russian journalists failed to fulfill their duty, or why the hell were they needed then?"

Then the advisor said that he had just returned from a Supreme Soviet session where the Criminal Code had been successfully augmented by two new articles. In Yablokov's opinion, they are extremely important. Because they pertain directly to bacteriological weapons. The 1972 convention concerning the complete banning of such weapons was signed by the USSR in 1975. But since that moment the problem of verifying the execution of the convention has been absolutely unresolvable. Who could reliably establish that the development of a particular vaccine or work with strains of pathogenic bacteria was not a different violation of the convention? Before the arrival of the most meticulous inspection party, it was easy to conceal the traces of that kind of activity. In 1989 the U.S. Congress enacted a law according to which the development, storage, or transporting of bacteriological weapons are declared to be a criminal act. So immediately every scientist and officer must decide for himself whether he wants to be a criminal. The new articles adopted by the Russian Supreme Soviet repeat word for word the formulations adopted by the American Congress.

But Academician Yablokov feels that our legislators should have gone even farther and should have introduced

into the law the concept of a crime against humanity. Because, as everyone knows, they do not have a statute of limitations.

"This is why we need this," Aleksey Vladimirovich explained. "I accompanied Yeltsin on his trip to Altay, and while we were there we learned out the terrible circumstances pertaining nuclear explosions that had been produced at the Semipalatinsk test range. The military men had received instructions from Moscow not to allow the radioactive clouds to go beyond the limits of the USSR borders. The instructions particularly stipulated that there should be no such fallout on the territory of China. Naturally, the people carrying out the nuclear explosions protected their own city of Kurchatov against exposure to radiation. As a result, the charges were exploded at times when the wind was blowing toward Altayskiy Kray and Barnaul. There was a deliberate—and this has been accurately proven—directing of the nuclear fallout to Southern Siberia. What is this, if not not a crime against humanity? The 1954 Totskiy exercises, when a bomb was exploded over the heads of thousands of soldiers and officers, were exactly this kind of crime. The paradox is that, as a result of this explosion, hundreds of people died, but the military leaders who had committed that monstrous experiment are not criminally liable. A criminal case, if the prosecutor's office had attempted to initiate it, would have been immediately discontinued because of the statute of limitations.

"But, generally speaking, what can be demanded of our third power?" Yablokov asked bitterly. "The courts are our Russia-wide pain. They are absolutely illiterate concerning the ecology. Here is a fresh example for you. The prosecutor for the Moscow area reported that last year they had sent to the courts 22 cases dealing with the unauthorized appropriation of Moskva River bottomland. Not a single one of these cases was considered by the courts as having any social importance. The Muscovites' health has been worsening. They are drinking water that contains practically the entire Mendeleyev table. But the judges do not understand that the water that has been poisoned by heavy metals, pesticides, and mineral fertilizers does not pour down from the sky before it gets into our waterlines. It is polluted in those very same bottomlands, which should be guarded like the apple of our eye."

Naturally, the journalists did not allow Aleksey Vladimirovich much time state his passionate monologue before they switched over to the attack. I, in particular, wanted to know how it happened that Russia began to accept nuclear waste from the countries in the former socialist camp. From the advisor's answer it became clear that the draft of the Russian law governing the protection of the environment contained an article concerning the importing of radioactive waste for burial and processing. But, under pressure exerted by representatives of the military-industrial complex, with whom the Supreme Soviet is replete, in the promulgated law that formulation was changed. As a result, Russia, on the basis of the previous obligations of the USSR, is required to accept for processing the nuclear fuel of those nuclear power plants that we had managed to build in the countries of the

socialist camp. And now the specialists in nuclear engineering are attempting to prove that the spent nuclear fuel is not waste products, but elements in the nuclear fuel cycle. But after the processing of each ton of such fuel there remains, as Yablokov emphasized, a large quantity of dangerous waste products.

"Our ministry of power engineering needs money," he explained, "and it will attempt to earn millions of dollars by accepting nuclear waste products. And it is easy for that ministry to do this. Because Russia still lacks a law governing nuclear security. And this is not accidental. It is the result of the opposition put up by the nuclear departments, which have an extremely large self-interest in assuring that there is no legislative base in this field, and in being able to continue to work behind the screen of secret departmental guidelines."

In response to the question of what he thinks concerning the new concept for the energy program that was adopted by the government, Yablokov related what is almost a detective story that requires journalistic research. Two independent groups of specialists worked on the concept. And the President's advisor himself was very gratified that finally there were independent specialists, and, consequently, a well-substantiated program would be adopted. But in February he learned that both groups had been given secret instructions to provide for the development of nuclear power engineering. After this, the academician was forced to convoke his group of experts that had submitted an alternative concept. It attempts to prove that Russia can develop completely calmly without nuclear power plant, if the emphasis is made on energy saving and on the development of already existing technologies, particularly gas turbines. But during the discussion of the concept in the government, Yablokov remained all alone. Danilov-Danielyan, the minister of ecology and natural resources, simply turned coward. Everyone else, according to the advisor, attacked him.

"With figures in my hand, I attempted to prove," Aleksey Vladimirovich stated, "that this was an outrage, and that, by the year 2010, nuclear power engineering would receive twice as many appropriations as all the other kinds. This is an old program, a USSR program. I ask you 'green' journalists to start working on this fearful problem, because, once again, we are being deceived. Once again we are being drawn into the completely inefficient use of natural resources, into a tremendous ecological risk."

In response to my question of whether the President's advisor has anything he would want from the ecological journalists of St. Petersburg, Yablokov asked, "Why do they write so little about the tremendous blemishes of Chernobyl 'dirt' on the territory of the oblast? It is in this way that they make it possible to plan the port in Luzhskaya Guba."

He reported that, after the publication in MOSKOVSKIYE NOVOSTI of an article on radioactive pollution in the Shkiperskiy Channel of Vasilyevskiy Island, he

had sent an inquiry to the State Committee for Sanitation Inspection. Everything was confirmed.

"Now we shall force the Navy to analyze this critical situation. I promise my help in this matter."

Ecology Ministry Presents Draft Conversion Plan

93WN0117A Moscow ROSSIYSKIYE VESTI
in Russian 6 Nov 92 p 3

[Article by Aleksandr Rybakov: "Rockets To Help Nature; State Special-Purpose Program 'Conversion-Ecology' Drawn Up"]

[Text] In the Moscow region of Brateyevo the residents have set up pickets to protest construction of a Metro station on their territory. This unexpected step was brought about by the fact that the underground branch line must pass through a former city dump where, according to information from ecologists, an enormous amount of explosive methane gas has accumulated, which is capable of causing a catastrophe. This once again testifies to the fact that people are worried about questions of ecological safety.

The situation is truly extraordinary, according to data from the Ministry for the Protection of the Environment and Natural Resources. Only 15 percent of major cities can be considered ecologically safe. For example, the Moscow region ranks right up there with Kuzbas [Kuznets Basin] in terms of pollution. In Russia there are 13 zones with a dangerous ecology, to include the Chernobyl zone and the Southern Urals in the vicinity of Chelyabinsk, where chronic radiation sickness has appeared...

And here are some other figures: from 1989 through 1992 annual population growth has shrunk by a factor of three and last year amounted to 200,000 people in all. In a number of regions the infant mortality rate has begun to grow. Annual losses from pollution of the environment is about R50 billion in 1991 prices. Ecological safety has become an integral part of national security.

The state special-purpose program, "Conversion - Ecology," drawn up by the ecology ministry, will become one of the approaches to solving this global problem.

"This is the first step in the conversion of the defense complex; it envisages mainly experimental design work and preparation for serial manufacture of products for ecological purposes," says Viktor Kutsenko, chief of the Ecological Safety and Normalization Administration. "The client is our ministry, which concludes agreements with enterprises, provides scientific-technical accompaniment, accepts articles and distributes them.

"The program guarantees the effectiveness of solution of problems of environmental protection at the federal level. It attempts to optimize investment priorities according to a 'cost-effectiveness' criterion. This summer I managed to take part in a press conference dedicated to the opening of a working conference on global ecological monitoring. At this conference the idea was presented to make use of

RS-20 rockets to launch ecological satellites into the atmosphere; these rockets are slated for destruction in accordance with an agreement with the United States. As it turns out the Ecology Ministry accepted the idea."

The federal program has still another virtue: on the basis of a similar algorithm one can set up regional programs, as they are already doing in Kaluga Oblast. On the whole, achieving the intended goals envisages recruiting about 90 scientific-research institutes and planning-design organizations of various ministries. At subsequent stages an industrial component will be added to the program, to include a range of goods and the volume of serial production worked out at the first stage of environmental protection production. This equipment will subsequently find its place in territorial ecology organizations, and among the populace as well. For polluting the environment, fines and sanctions paid to federal and local ecological funds may be used to pay for the equipment, as well as the assets of enterprises and agencies.

The Conversion-Ecology Program has been presented to the Government. According to preliminary evaluations, at the first stage of implementation, the annual economic effectiveness will amount to R3 billion in 1991 prices.

But for now we shall have what we have: gas pipeline accidents, picketing citizens, and an alarming ecological situation. One fresh fact: a rail car arrived in a town outside Moscow, without indication of the recipient. When it was opened people were horrified. The car contained especially dangerous industrial wastes. As it turned out, this was the handiwork of a cooperative that had been hired to destroy the materials, and carried out its task in this criminal manner. A criminal case has been instituted.

This fact stresses once again that the Conversion-Ecology Program has come at the right time.

Danilov-Danilyan Says Ecological Situation 'Stabilized'

OW2711224592 Moscow INTERFAX in English
1907 GMT 27 Nov 92

[Following item transmitted via KYODO]

[Text] The ecological situation in Russia this year has stabilized, said Victor Danilov-Danilyan, minister of ecology and environmental protection, at a press conference Friday in Moscow. He explained, however, that the stabilization was caused by a decline in production.

The minister also said that Russia produces more than 100,000 tons of ozone-harmful matter each year. This is almost 10 percent of the worldwide production of ozone-harmful matter. "Whoever signed the Vienna Convention on environmental protection in 1987 on behalf of the Soviet Union probably didn't have a very clear understanding of what he was doing. In our circumstance, even then we were simply in no position to fulfill all of the convention's points," said Danilov-Danilyan.

Documentary Examines Moscow CW Institute Controversy

PM3011094192 Moscow Teleradiokompaniya Ostankino
Television First Program Network in Russian 1955 GMT
11 Nov 92

[From the "Secret of Chemical Weapons" documentary:
Video report by unidentified reporter]

[Excerpts] [video opens with view of building] [Reporter] This is No. 23, Shosse Entuziastov—home of the State Russian Scientific Research Institute of Organic Chemistry and Technology. Since the publication in MOSKOVSKIYE NOVOSTI of the article entitled "Poisoned Politics" this institute has been a focus of journalists' attention. The article on this institute said the following: "A new toxic agent with effects that are virtually incurable has been created here." The reaction to this article came on 20 October. One of the authors, Lev Fedorov, was subjected to search and interrogation by the Ministry of Security. His coauthor, Vil Mirzayanov, was arrested and incarcerated in Lefortovo prison. Now Mirzayanov has been released and is under house arrest. But as this report was being filmed he was still in solitary confinement, charged with divulging state secrets. [passage omitted]

Anatoliy Kuntsevich is head of the Committee on Chemical and Biological Weapons Convention Problems under the Russian President. He is the man to whom the authors of the article attributed the main role in creating the new toxic agent. Academician Kuntsevich himself says that the charge is unfounded. The Security Ministry held a press conference which confirmed the charge of divulging state secrets against Vil Mirzayanov. There are at least two questions which have not been given clear answers yet. Did the authors of the article actually get involved in state secrets and, if so, are these state secrets not in conflict with the International Convention on Chemical Weapons? [passage omitted]

Dr. Fedorov and Dr. Mirzayanov assert that binary weapons were developed at the State Institute of Organic Chemistry and Technology on the basis of new toxic agents. This fact, in the view of the article's authors, contravenes the agreement with the United States signed in 1990. The Russian presidential committee headed by Anatoliy Kuntsevich exercises international monitoring on the president's behalf of the observance of the provisions of international agreements in the sphere of the banning of chemical weapons.

[A. Kuntsevich] The article published in MOSKOVSKIYE NOVOSTI which has been arousing such high emotions unambiguously concludes that Russian plants were producing chemical weapons after 1987. On behalf of all government structures I declare categorically that this does not correspond to the facts. Since 1987 not one plant has engaged in production, not one freightcar or train load has been added to those stocks created in the Armed Forces in 1987. This is an attempt to accuse Russia of nonexistent violations of commitments. [passage omitted]

[Reporter] Every developed country must keep its own state secrets. The observance of this duty, according to Academician Kuntsevich, is quite sacred. However, Kuntsevich's

authoritative statements that chemical weapons have not been produced in Russia since 1987 still does not answer the question of the existence of an experimental consignment of new toxic agents within the walls of the Scientific Research Institute in Moscow. This institute, located on Shosse Entuziastov, has for many years done work for the Defense Ministry. This is the first time that a TV crew has been able to film inside this site. [passage omitted]

They showed us the institute's premises which are being used today for work in the conversion sphere. In this laboratory, the toxic agent lewisite is being processed to produce arsenic. According to Viktor Petrunin, director of the institute, no new types of toxic agents or binary systems based on them are being developed at this institute. The examples cited in the article by Mirzayanov and Fedorov, in his opinion, do not correspond to the facts. On the basis of what we saw we do not consider it possible to draw any conclusions. We wanted to give the various sides an opportunity to express their positions. The chemical weapon or binary system described in the newspapers does not exist on this institute's premises.

[Viktor Petrunin, director of the Institute, identified earlier in the program] The fact is that we have never developed the components of any binary system in any appreciable quantities in our institute's experimental plant or in the institute's laboratory.

[Reporter] The questions raised in this article relate not only to a new toxic agent but also to the environmental danger that the institute presents to the inhabitants of Moscow. The authors consider that the recycling of waste products is unsafe. The soil has been contaminated with harmful substances, and for that reason when people work on the soil they use gas masks. This is probably overcautious. As director of this institute, can you guarantee that the inhabitants of Moscow are safe or not?

[Petrunin] I guarantee that unconditionally. [passage omitted]

The institute has on its premises a service which constantly monitors the level of contamination in the soil and water and ventilator discharges into the air. Nevertheless, anxiety is always bound to exist in this respect. It should not be forgotten that in the sphere of scientific research hazardous to human life too often it has been not people's dreams but their worst nightmares that have come true. [video shows extensive views of scientific research institute, interior of Lefortovo prison, interviews]

Commission Finds No Grounds for Accusation Against CW Facility

LD2111193992 Moscow ITAR-TASS in English
1927 GMT 21 Nov 92

[By ITAR-TASS correspondent Nikolay Krupenik]

[Text] St. Petersburg, November 21 (TASS)—The West's concern about the alleged violation by Russia of the 1972 convention banning biological weapons and, particularly,

about the production of pure plague strain at St. Petersburg's Institute of Pure Biological Preparations have no grounds whatsoever.

This statement was made at Saturday's news conference for Russian and foreign journalists by Academician Sergey Prozorovskiy. The renowned scientists and microbiologist led the Russian part of an independent commission which investigated the work of the institute. The investigation was undertaken on the Russian president's instruction by the Committee for Conventional Problems of Chemical and Biological Weapons under the Russian President between November 18-21. The commission included prominent scientists of the Russian Academy of Medical Sciences in the field of epidemiology, microbiology and virology, members of the Russian Committee for Sanitary and Epidemiological Supervision, the Committee for Conventional Problems of Chemical and Biological Weapons under the Russian President.

The inspection was conducted in the presence of representatives of the Russian Ministries of Foreign Affairs, Health and Defence.

Strictly abiding by the principles of openness and trust, observers from the U.S. and Britain were invited to work on the commission.

The Institute of Pure Biological Preparations, the leading centre in this field, was set up in 1974 to deal with theoretical and applied problems of modern biotechnology and bioengineering.

The delegation received all the necessary conditions for normal work and an unimpeded access to laboratories and offices of the institute, for meetings with institute employees, for taking photos and making video films. Mark Remi, a co-chairman of the American part of the delegation of experts and observers, told the news conference. He said the delegation was grateful to the Russian Government for the opportunity to take part in an action that would help promote trust and openness.

Head of the Russian part of the commission academician Prozorovskiy told journalists that concern of British and American sides with regard to the activities of the Institute of Pure Biological Preparations is based, as he said, "on distorted information about research which indeed was conducted here until May 1990 with vaccines of plague strain and in 1992 with the virus of pseudoplague of birds."

The thrust of this research was analysed with utmost attention, and it was established that the research was conducted to create vaccines and not "biological offensive strains of microorganisms, as the West mistakenly believed," Prozorovskiy stressed.

All members of the commission said the joint action was marked by businesslike and constructive atmosphere and will help promote mutual understanding and trust.

Chuvash Republic Accepts On-Site CW Destruction

PM2011141192 Moscow KOMSOMOLSKAYA
PRAVDA in Russian 19 Nov 92 p 2

[I. Nikonov report: "Chemicals or Life"]

[Text] Cheboksary—The decision adopted by the Russian Government to destroy chemical weapons at the sites where they are produced has caused a storm of indignation in the Chuvash Republic. It is here, in the city of Novocheboksary, that the Khimprom Association—one of the largest producers of chemical weapons—operates.

Novocheboksary's women suffer 1.5-2 times more frequently from especially serious pregnancy complications than, for example, in Cheboksary. Population growth in the republic has sharply decreased, while the death rate has exceeded the birth rate. Physicians are linking all this with the specific kind of production.

Why are the Chuvash Government and the production association's administration holding out like this for on-site chemical weapons destruction? Simply because under this program the republic and the association have been promised subsidies running into millions of rubles and foreign currency.

Government Legal Consultant Provides Update on Chernobyl Legislation

93WN0105B Moscow RABOCHAYA TRIBUNA
in Russian 3 Nov 92 pp 1-2

[Interview with Merited Russian Jurist Nikolay Vikulin, legal consultant to the Russian Federation State Committee for Social Protection of Citizens and Rehabilitation of Territories Hurt by the Chernobyl and Other Radiation Disasters, by Correspondent Leonid Arikh under the rubric "Have You Called a Lawyer?"; place and date not given: "The Law Is on Your Side"]

[Text] Merited Russian Jurist Nikolay Vikulin, legal consultant to the Russian Federation State Committee for Social Protection of Citizens and Rehabilitation of Territories Hurt by the Chernobyl and Other Radiation Disasters, replies to questions from readers of RABOCHAYA TRIBUNA.

[Correspondent] Nikolay Vasilyevich, there have been an especially large number of questions from Chernobyl residents in mail for the rubric "Have You Called the Lawyer?" One such question is this: Why the supplements and amendments to the Russian Federation law "On Social Protection of Citizens Subjected to the Influence of Radiation as a Result of the Chernobyl Nuclear Power Plant Disaster"? It is asked by N. Churilov from Volgograd, B. Mylyev from Kaluga and many others.

[Vikulin] The law was amended and supplemented chiefly because of the need to bring it into correspondence with the economic reform. All benefits taking monetary form,

beginning with various payments, were reviewed. To protect them from inflation, a mechanism that kicks in automatically was developed in order to keep these benefits from losing their value.

[Correspondent] N. Paliy from Khabarovsk Kray and the Golubin family from Perm ask if the updated law will continue to divide disaster control workers into different groups depending on the time of their participation in disaster control efforts?

[Vikulin] The division into two groups will stay the same. Citizens who participated in the disaster control effort in 1986-1987 are in the first group, and those who took part in 1988-1990 are in the second. This division has fundamental significance because the volume of compensations and benefits depends on it. It stands to reason, however, that they are significantly smaller for those who participated in emergency operations in the concluding stage, and vice versa. As far as the second question is concerned, as before, the law defines participants in the most general terms. Nonetheless, one condition is mandatorily taken into account: participation in emergency operations in the alienated zone. I'm referring to the 30-kilometer zone around the Chernobyl Nuclear Power Plant and parts of the territory of the federation.

[Correspondent] The overwhelming majority of questions from Chernobyl residents have to do with housing.

[Vikulin] Our committee also receives letters of this kind. The people are primarily asking about changes in housing benefits and rights. In the new version of the law, 1986-1987 disaster control workers retain the right of priority in housing (if of course they do in fact need it). This part was also supplemented: The right to improved housing conditions is also possessed by those who reside in communal apartments (sharing a kitchen). In this way the working room allowed to officials in placing names on housing lists depending on time of residence in a given population center is reduced. In order to protect disaster control workers from local limitations, the new version of the law directly states that housing is provided to disaster control workers irrespective of time of residence in the population center.

Many disaster control workers who have poor housing conditions have barely made any use of the right to obtain interest-free loans, 25 percent of which are paid off with money from the state budget. What has held them back is that it is so hard to reserve a land parcel, obtain the construction materials and hire workers. But now an obtained loan may be invested into cooperative housing. The right to join a housing construction cooperative on priority is provided.

In the case of disability or illness associated with the radiation load, apartments must be allocated to disaster control workers within three months of the date of submission of their application, and they must be provided additional housing space taking the form of a separate room.

Disaster control workers who participated in 1988-1990 also enjoy benefits in obtaining fully equipped apartments; however, these benefits pertain only to those who are living in communal apartments. But as for the right to obtain housing space as personal property free of charge, they enjoy the same thing as do 1986-1987 disaster control workers and citizens who were afflicted by (survived) radiation sickness and other illnesses, or who became disabled owing to the Chernobyl disaster.

[Correspondent] Nikolay Vasilyevich, Vladden Iosifovich Vanin from Irkutsk and V. Pinyagin and R. Mirov from Moscow ask in their letters about benefits enjoyed by persons living in the evacuation zone. But first of all, can you explain what this zone is?

[Vikulin] The evacuation zone is territory on which the density of soil contamination by cesium-137 is over 15 curies per square kilometer. The evacuation zone can also include certain areas where the level of radioactive contamination may be lower but certain landscape and geochemical features of the soil exist, including land with soil promoting high migration of radionuclides into plants.

[Correspondent] Is one-time assistance five times the minimum monthly wage paid to each evacuee if the family does not give up (forfeit) a building or other property belonging to it? This question is asked by V. Blintsov from Voronezh.

[Vikulin] Yes, it is. Buildings and other real estate belonging to a person who is evacuated (who leaves voluntarily) are his own property, and he has the right to dispose of it as he sees fit.

[Correspondent] What benefits extend to citizens residing permanently in an evacuation zone? This is asked by V. Telyatnikov from Omsk and G. Derbichev from Podolsk.

[Vikulin] I think that persons residing on contaminated territory are well aware of these benefits. Therefore it would be better to focus on the new provisions. While in the past, persons residing (working) in the evacuation zone were given compensation amounting to 60 rubles, now it is 60 percent of the minimum monthly wage. The monthly extra monetary payment to workers (regardless of the forms of ownership of the enterprises, institutions and organizations by which they are employed) is four times the minimum monthly wage—that is, R3,600 (R900 x 4).

The law was significantly amended in regard to annual leaves. Not all could take advantage of the benefit of increasing it to 44 calendar days. It did not account for the fact that a longer leave is foreseen for some occupations. No one will be left out any longer in regard to leaves. All citizens residing in the evacuation zone are guaranteed additional paid leave of 21 calendar days, regardless of any additional leave granted for work in harmful conditions.

An obvious mistake was made when fewer educational benefits were granted to citizens residing in the evacuation zone than to those who left it. Schools admitted the latter without having to undergo the normal competition, while those residing outside the evacuation zone possessed only a preferential right. Now this clearly unfair provision has

been abolished. When entering higher and secondary special educational institutions, it is sufficient to pass an examination (have positive grades) to have noncompetitive admission guaranteed.

Free food from a dairy kitchen is foreseen for children up to 3 years of age—something that was not provided before.

The law was also amended in relation to children of nursery school age. They are put up in children's preschool institutions free of charge. But what about cases where the child remains at home? such a child must receive free food on the basis of norms set by the local administration.

[Correspondent] Let's get back to the disaster control workers. One of them, pensioner Valentin Georgiyevich Svitskiy from Tver Oblast, asks what sort of guarantees are provided by the state to Chernobyl residents in regard to health improvement.

[Vikulin] The renewed law has been significantly supplemented in this regard. For example free health care both in the hospital and on an outpatient basis has been added to free medicines (on a doctor's prescription). This is a significant supplement, since it relieves disaster control workers of the first wave (1986-1987) of sizable outlays on some forms of health care services presently being provided to the population for compensation. These services (medicines, health care) will now be provided with a discount of 50 percent of their cost to those who participated in the disaster control and other similar operations of subsequent years (1988-1990).

[Correspondent] Must disaster control workers pay income tax? (L. Ivanov, Desnogorsk, Smolensk Oblast).

[Vikulin] If you're talking about the 1986-1987 disaster control workers, they are released from paying income and other taxes and, according to the new law, from all forms of duties, and from registration and health resort fees. This benefit does not extend to 1988-1990 disaster control workers.

[Correspondent] We know that some benefits for disaster control workers of both groups have also been changed in the new law.

[Vikulin] That's true. The legal rule regulating transportation benefits was changed in the renewed law. It no longer places restrictions on travel in rural areas, and consequently a person can use public vehicular transportation in rural areas outside his own administrative region.

Now about food products. A monetary payment equal to 50 percent of the minimum monthly wage established by the law can now be received for their acquisition.

Disaster control workers in ill health must obtain sick passes for the time of their treatment. Conflicts have often arisen in making payments on the basis of these passes because of the absence of clear criteria by which to determine the amount of such payments. According to the new edition of the law, assistance for temporary incapacitation is paid in the amount of 100 percent of actual wages, regardless of time of continuous service, and without being restricted to two pay rates (salaries).

A lapse in the law regarding support of the family of a disaster control worker following his death was also corrected. The following are guaranteed to the family, including the surviving spouse: priority access to fully equipped housing space regardless of time of permanent residence in the given population center, on the condition that the family is found to require improved housing conditions; rent on housing space equal to 50 percent of apartment rent (within norms foreseen by existing legislation), and a 50 percent discount on payments for use of a telephone on priority, on radios and their installation, and on use of heating, water, gas and electricity. Those who live in dwellings lacking central heating are given a 50 percent discount on fuel.

[Correspondent] Does the Chernobyl law extend to citizens who suffered dangerous exposure to other sources of radioactive radiation?

[Vikulin] Yes, it does. But in cases strictly determined by legislative acts and by a 27 December 1991 decree of the Russian Federation Supreme Soviet, the Russian Federation law "On Social Protection of Citizens Subjected to the Influence of Radiation as a Result of the Chernobyl Nuclear Power Plant Disaster" extends to citizens in special risk categories who carried out special assignments. They include the direct participants of atmospheric nuclear weapon tests, tests of military radioactive substances, and exercises involving the use of such weapons prior to the date of actual cessation of such tests and exercises; the direct participants of underground nuclear weapon tests in unusual radiation situations and in the presence of other injurious factors of nuclear weapons; direct participants of efforts to contain radioactive accidents of the nuclear propulsion units of submarines and other military objects; military service personnel of separate subunits assembling nuclear warheads; the direct participants of underground nuclear weapon tests, and persons who participate in and support the collection and burial of radioactive materials.

[Correspondent] One last question, Nikolay Vasilyevich. According to our own correspondent in Kiev, Georgiy Dolzhenko, as well as some RABOCHAYA TRIBUNA readers, Ukrainian Chernobyl legislation differs from Russian legislation. Is this true, and how significant are the differences?

[Vikulin] After the collapse of the Union, each sovereign republic began publishing its own supplements and amendments to the "Chernobyl" laws. For example Ukraine adopted such amendments twice—in December 1991 and in July 1992. As a result the initially almost identical laws began differing from one another, albeit insignificantly. This is especially true of provisions concerning benefits.

For example the Ukrainian law sets more rigid guidelines for determining the categories of victims. It defines as disaster control workers only those who worked in the evacuation zone from the moment of the accident to 1 July 1986—regardless of the number of days worked, from 1

July to the end of the year—not less than five calendar days, and in 1987—not less than 14 calendar days.

Things are better in Russia with providing free motor vehicles. Here the brand is not indicated—that is, it could be both a Zhiguli and a Moskvich, while in other CIS states the law clearly states it must be a ZAZ-968. But on the other hand in Ukraine, Chernobyl survivors are provided not only the right of priority telephone installation but also a 50 percent discount on the installation fee and on subsequent phone rates. Scholarships to Chernobyl students are also doubled here, and medal-winners generally study at state expense.

At the same time, no compensation at all is paid for food in Belarus, while disabled persons and disaster control workers are paid 75 percent of food costs in Russia and in Ukraine.

Russian Delegation in Japan To Discuss Nuclear Plant Safety

*LD2511172592 Moscow ITAR-TASS in English
0736 GMT 16 Nov 92*

[By ITAR-TASS correspondent Andrey Varlamov]

[Text] Tokyo, November 16 (TASS)—A delegation of experts from the Russian Ministry of Nuclear Power Engineering arrived in Japan on Sunday. They will discuss with Japanese specialists the problem of improving the safety of the Russian nuclear power plants, fitted with reactors of the Chernobyl type. The problem is extremely important not only for Russia, but also for the world in general.

The Russian experts were invited by the Japanese Research and Technological Department within the framework of the programme, announced at the conference of the G-7 countries in Munich, which is aimed at promoting the improvement of safety of the nuclear power plants in the former USSR and East European countries.

During the visit the Japanese specialists intend to show the Russian delegation a rather simple and original system of early emergency warning, created by the Local Agency for the Development of Nuclear Reactors and Fuel. It is functioning effectively at several Japanese nuclear power plants. The system is based at the processing of computer information on the acoustic situation in the reactors' cooling system, which comes through the highly sensitive microphone installed directly in it. They register any changes in the continuous flow of the cooling liquid.

Ministry Admits Tver Nuclear Facilities' Design Flaws

*LD2011195092 Moscow ITAR-TASS in English
1451 GMT 20 Nov 92*

[By ITAR-TASS correspondent Veronika Romanenkova]

[Text] Moscow, November 20 (TASS)—The State Council of Experts of the Russian Ecological Ministry acknowledged today that the design of the second stage, including power units three and four, of the nuclear power stations in

Tver (formerly Kalinin) "does not have sufficient ecological guarantees". Specialists think it is impossible to commission the third power unit without first solving a whole series of problems, the most important of which is water supply.

The 1984 design to expand the nuclear station in Tver to 4000 megawatts will be fulfilled by Nizhny Novgorod scientific researchers and designers of the Atomenergo-proekt (Atomic Energy Design) Institute by order of the station's director.

Experts, following state orders, will examine the ecology in the area.

New Type Nuclear Reactor Planned for 1997

*LD2011133792 Moscow ITAR-TASS in English
1254 GMT 20 Nov 92*

[By ITAR-TASS correspondent Veronika Romanenkova]

[Text] Moscow, November 20 (TASS)—Specialists from the research and design institute of energy-generating technologies have developed a new generation of the MKER-800 nuclear reactor. The new nuclear reactors will probably replace the reactors of the "Chernobyl type" (RBMK) at the Leningrad, Kursk and Smolensk nuclear power plants, which will begin to be put out of service in 10 to 15 years. The design was presented today at the Russian-Norwegian seminar on the safety of complex technical systems.

By the time the service life of the RBMK reactors is over, they will be replaced by more up-to-date and safe installations. The design presented today is good, but it is not the only one, a spokesman for the Russian Ministry of Nuclear Power Engineering told ITAR-TASS. The ministry's officials believe that the main obstacle is the negative attitude of the public to nuclear power engineering in general, and one should take public opinion into account.

The MKER reactor with the capacity of 800 megawatt is a new generation of channel reactors of the boiling type. The authors of the design maintain the reactor is absolutely safe. The overcoming of the emergency situation, should it occur, is ensured with the help of so-called passive means, the action of which is based on the physical laws of nature, and the interference of man is ruled out.

The new reactor is unique for one more reason: it is the only one among the reactors, which is fitted with devices for obtaining a wide range of isotopes, used in medicine, scientific research and technology, and for the radiation modification of the characteristics of materials.

Specialists believe the development of the working design may be completed before 1997. They plan to build the first power unit and put it into operation at the Leningrad Nuclear Power Plant between 1997 and 2003.

Journalists Acquire 'Radioactive Control Rods' in Murmansk

PM2411101392 Moscow Teleradiokompaniya Ostankino Television First Program Network in Russian 1800 GMT 19 Nov 92

[From the "Novosti" newscast: Video report from Murmansk by Dmitriy Kiselev, identified by caption]

[Text] [Announcer] The numerous reports in the Western press that nuclear components are being stolen from installations on the territory of the former USSR and taken abroad provoked an angry denial from our authorities, but only at first. Now such reports are simply ignored, as though they were a deliberate lie. Nevertheless, as of today it is going to be difficult for the nuclear leadership to deny that the storage of the most hazardous nuclear components is shoddy and that it is easy to remove them from guarded sites. Here is a special report from my colleague Dmitriy Kiselev and a correspondent from the German television company RTL.

[video shows dim panorama] [Kiselev] Murmansk—the biggest city in the world inside the Arctic Circle. The capital of the oblast with the highest concentration of radioactive materials per head of the population in the CIS. On the whole we have a large nuclear legacy. Test ranges, scientific reactors, burial sites, uranium enrichment plants, mines, laboratories, and missiles. The Soviet Union no longer exists but the nuclear potential remains. The Kola peninsula nuclear complex is a military facility—both at sea and on land. Nuclear power stations, a nuclear-powered ice breaker fleet, and of course the waste that all this produces. The Kola nuclear power station does not give Moscow any cause for concern. The people with the greatest fears are the Norwegians. They consider that too many operations are performed manually, that too great a role is played by the human factor there. Our people are outstanding. But the Norwegians cite Chernobyl, because the catastrophe there occurred precisely because of human error. Here we see new nuclear waste storage depots on the shores of Kola Bay, 10 minutes' drive from the city center. They are still being built. At the moment nuclear waste from the ice-breakers is being temporarily stored at sea—in the hold of this ship, the Lotta. Incidentally, at the moment there simply is no permanent burial site. Here we see an ice-breaker being filled with uranium-235 as fuel. But is this safe? Everyone used to give the same answer. Furthermore, at other nuclear sites in the CIS we would probably have heard the following reply.

[Valeriy Bozhkov, chief of the radiation safety service on the nuclear-powered ice-breaker Baygach, identified by caption] It is impossible to remove anything from here without being checked.

[Kiselev] If so, why has it been reported that Krzysztof Adamski, who is now in Germany, has only one more week to live? He was contaminated with cesium-137 stolen from the CIS. Other people are preparing to manufacture an atom bomb using uranium-235 produced in the CIS. One way or another, the German police are on the trail. Official Bonn is asking the CIS republics to tighten control on the

loss of radioactive materials. Meanwhile, German journalists have other methods. Adrian (?Gagis), a colleague from Germany's RTL, and I went to the nuclear fleet's base. In just a few hours we managed to set up two supply-lines of specialists, each of whom brought us lead-lined containers with radioactive control rods. As darkness set in we drove through the special control zone. Would they stop us or not? Would the sailor look inside the bus or not? Everything was simply lying on the floor. Perhaps there is some sort of automatic system in operation or perhaps a siren will sound? No. Everything was fine. Then we went back to the city, which is where you see us now. Adrian is carrying our trophy under his arm. We disguised it by putting it inside a cardboard box filled with waste paper. Now we are trying to assess this incident. The usual radiation background is 10-15 microroentgens per hour. But our instrument looks like it has gone mad. The next morning the city's radiation counter shows the usual 11 microroentgens per hour. You can find out what happened that morning by watching tomorrow's broadcast at this time on Ostankino Channel One. [video shows visit to nuclear base, ships, radiation measurements]

Chelyabinsk-65 Suffers 'Terrible Legacy' of Plutonium Production

93WN0114A Moscow NEW TIMES INTERNATIONAL in English No 32, Aug 92 pp 24-26

[Article by Oleg Vishnyakov: "Chelyabinsk-65 Equals Twenty Chernobyls"]

[Text] Forty years of plutonium production for atomic weapons have turned the Southern Urals into an ecological disaster zone.

Chelyabinsk-65 (the official name, Ozyorsk, has not taken) is the first and, perhaps, the largest of the ten "off limits" towns subordinated to the Atomic Energy Ministry of the Russian Federation, the successor to the USSR's Medium-Size Machine Building Industry. The Mayak chemical plant has been producing combat plutonium—an indispensable component of nuclear arms—there for the past forty years. And it was there that three horrible nuclear disasters which made the Southern Urals the Earth's most radiation polluted region took place.

The local authorities are wary about newspapermen, but once you have found your way there, they treat you well. They will take you on a tour of the town (pop. 86,000, a lot of greenery, a drama theatre, the OZYORSKY VESTNIK newspaper, well-stocked food stores—as compared with those of the neighbouring "open towns"). You will be taken to the local museum, to the Kurchatov House "where he lived and worked," and accorded a peep at the works.

The production of combat plutonium was stopped there a year and a half ago. All the five reactors have been "moth-balled" and will be under observation for at least thirty years. This does not mean, however, that the Mayak has stopped "serving military purposes"—it still has its carefully guarded secrets. There is still no admittance to certain parts of the town and of the Mayak grounds without a pass.

and far from all the plant workers have free access to the "holy of holies"—the shops where "special products" are made. No explanations are offered as to the nature of those "special products."

But then you will be readily told that the Mayak makes radioisotopes for export, processes waste nuclear fuel coming in from atomic power plants (partly under our international commitments to Eastern Europe countries and Finland) and from submarines, launches conversion programmes.

The radiation background within the town limits is normal. Nevertheless, as compared with other "off limits" towns of the Atomic Energy Ministry (Tomsk-7 and Krasnoyarsk-26 where combat plutonium is also made) the overall disease-incidence rate in it is 1.5 higher; specifically, it has 2.5 times the average number of cancer cases; twice that of diabetes cases; 1.5 times that of respiratory troubles; and 1.8 times that of inborn anomalies.

The past still makes itself felt.

A Secret Installation 'Talks'

The residents of Ozyorsk told me that their town had been founded by Yefim Teverovsky, a military engineer who led a group of surveyors to the Southern Urals in November 1945.

After the atomic bombardments of Hiroshima and Nagasaki, Stalin decided to have his own nuclear arms tested as soon as possible by way of an answer to Truman. Beria was made personally responsible for the nuclear testing programme. The first reactor was built and started up in the Southern Urals incredibly fast, in a year or two.

Plutonium was produced in feverish haste, and the reactors were of the most primitive kind. Next to nothing was known about what radiation was and what effect it had on human organism. This is, perhaps, the only explanation for what happened later.

Radiochemical production is known to cause large amounts of liquid radioactive waste. Their safe storage remains No. 1 problem of atomic power engineering. In those years, the Mayak dealt with the nuclear waste disposal problem simply by dumping it into the nearest river, the Tcha. Unknowingly, people bathed in the river, drank from it and watered their cattle from it. And then died of a mysterious disease.

That went on for two years until the local sanitation and epidemiological station sounded the alarm. A special commission was formed at the end of 1952 to clear up the situation, and Academician Alexandrov himself was appointed its head. Having measured radiation levels and made random medical examinations of the local residents (every second of whom turned out to have radiation sickness) the commission arrived at the conclusion that the radiation effect was enormous, that the practice of dumping radioactive waste into the river had to be stopped, and the local people resettled elsewhere.

There Are No Healthy People in the Village of Muslyumovo

Mass evacuation began as late as in 1955 and, as most experts admit today, the measure did not bring the desired result—by that time people had already received heavy doses of radiation.

I happened to be in Muslyumovo. The village remains, to this day, a sore point of the region. On the river bank, my dosimeter showed 823 microrentgens per hour, which is about 40 times the maximum permissible level. I was told that the place was relatively safe, and that in some places nearby the radioactive background level amounted to 2,500 microrentgens.

By all the existing rules of radiation safety, people should be evacuated from those places immediately. Local children receive doses of up to 2 rem a year which is much more than anywhere in Chernobyl. Besides, they have accumulated internal radiation; after all, they are third-generation radiation victims!

Gainulla Kamalov, the chief of the village administration, told me that last year he had had 70 Muslyumovo kids examined in a town after-work sanatorium. The examination revealed all the children, without exception, were ill, with serious complications.

Horses and cows graze peacefully on the river banks, and children, in spite of the ban, angle for small fish. "What do you do with the fish?" I asked. The question amused them. They eat it, of course. Did they know how harmful it was? Oh, they heard about that, but the water looked clear enough, didn't it, so where was the harm to come from?

"There is no life without the river anyway," Kamalov says. According to him, no one wants to leave. The village people believe that the answer lies in better living conditions and a better medical service. In a village with dozens of radiation victims there are practically no skilled doctors, let alone medicines. Boris Yeltsin visited the place on June 5, 1991, and promised to "look into the matter. Nothing has changed since then.

'Northern Lights'

They readily show journalists the place where an accident took place on September 29, 1957—a container with 250 cubic meters of highly active nuclear wastes exploded at the depth of several metres below the surface because of a defect in the system of cooling. Now it's safe there, only a huge concrete block thrown away by the explosion at the distance of several metres reminds of the accident.

The power of the explosion was equivalent to 10 tons of TNT, the total discharge of radio-nuclides to the atmosphere reached 20 million curies (the entire Chernobyl yielded 50 million curies), out of which 18 million fell out on the site and 2 million dispersed all over the territory of the Chelyabinsk, Sverdlovsk and Tyumen regions covering 23 thousand square kilometres.

In the beginning of October 1957 local and central newspapers carried reports about an unusual natural phenomenon observed in the vicinity of Kyshtym and resembling

the northern lights. It was in fact a radioactive cloud, the so-called Eastern Urals radioactive track which nearly reached Tyumen, spreading over a territory inhabited by 270 thousand people. If the wind had been a bit stronger, Sverdlovsk would have been in this zone too, and the city would have to be urgently evacuated.

...This time the residents of the most contaminated villages were resettled very quickly. Special detachments gathered the population, issued them special clothing, burned their old clothes, personal belongings and houses; the cattle was shot, also burned down and buried. All resettlers numbering about 10 thousand people were given housing in safe regions.

Now, 35 years after the accident, the greater part of the polluted area is again cultivated, except for a territory of 16 thousand hectares where there are too many radionuclides in the earth. A sanctuary has been created here in which scientists who work at an Experimental Research Station explore the influence of radiation on the local animal and vegetable life. However, the unsuspecting residents of Sverdlovsk and Chelyabinsk used to gather mushrooms and berries here during all these years.

The third accident occurred in the summer of 1967 near the Karachai Lake where radioactive waste has been dumped during all these years and is still dumped now. After a dry winter and a hot summer the lake had noticeably dried up, and a strong wind spread the radionuclides from the beaches thus formed throughout the surrounding area. According to some assessments, 42 thousand people more were irradiated as a result of this disaster.

Now the Karachai Lake is being filled up with rocky soil and road metal. Not so much is left, only 14 hectares. The lake is believed to finally disappear in 1994, but will this solve the problem?

A year ago an expert commission of the USSR Supreme Soviet discovered a reservoir of radioactive underground waters underlying an area of 30 sq. km. Where will they break through to the surface?

Professionals Are Not at Fault

I witnessed a peculiar scene in the central department store in Chelyabinsk. A broadshouldered guy aged about thirty tried to buy something without lining up. When someone objected indecisively, he produced a certificate in a businesslike manner. They let him pass without saying as much as a word.

"An Afghan war veteran?" I inquired from those around me. He turned out to be a Chernobyl rescuer.

There are several hundred such young men at the Mayak plant. Everyone deservedly enjoys privileges granted them under the law of the Russian Federation "On the social protection of citizens irradiated as a result of the catastrophe at the Chernobyl Atomic Power Station."

When this doubtlessly humane law was adopted, protest was voiced at the Mayak plant, because it failed to mention those who had suffered from radiation at other projects, and suffered much earlier and much more seriously than

those in Chernobyl. Among the liquidators of the Chernobyl accident few received a dose exceeding 25 rem (roentgen equivalent man), while there are thousands of such people at the Mayak plant!

158 cases of radiation disease were registered in Chernobyl. At the Mayak plant, only according to preliminary data, there are over two thousand such cases, and another six thousand of its personnel received a total dose of over 100 rem, including not less than 25 rem during one year, which is considered especially hazardous to health.

In the 1950s, the chemical plant's personnel worked in their own clothes, freely breathed in plutonium and spread radioactive dirt all over the plant's territory. "Emergency situations happened nearly every day," recalls Maria Zefirova, a veteran of the works. "If, for instance, a radioactive liquid was spilled, we removed it with bare hands, using a rag."

Vladimir Turusin who came to work at the Mayak chemical plant in 1954 (later he took part in the clean-up after the 1957 accident; now he is the deputy manager for personnel) told me he had been unpleasantly surprised on the very first day, when he saw in the backyard of one of the premises a heap of ready-made gravestones—it only remained to engrave a name and the years of life. Here one used to get ready for others' deaths beforehand.

They Don't Want Such a Law

A meeting with people suffering from the so-called occupational disease, i.e., "the chronic form of radiation disease," was arranged for me. Slightly over seven hundred such people still live in the city, and they are not at all elderly ones. Many of them are mortally ill—chronical radiation sickness causes cancer.

These people wrote letters to Ryzhkov, Yeltsin, Khasbulatov and Gaidar, sent delegations to the Kremlin and parliament, asking for very little—to have at least the "Chernobyl privileges" extended to them. In reply they were advised to work out a draft law of their own which could be forwarded to parliament. When the draft law was ready, the Ministry of Atomic Machine-Building decided to extend the "Chernobyl privileges" to them too.

Difficult To Reject a Legacy

"Ours is a terrible legacy," comments the plant's manager, Victor Fetisov, 50. "We had to pay too dearly for plutonium."

The price is as follows: 500 thousands of over-irradiated population (the figure should be at least tripled now, since the third generation has already appeared), 20 thousand dead. In addition, there are a contaminated river system, 83 square kilometres of radioactive reservoirs, the Karachai Lake with its 120 million curies of radionuclides, and 98 containers with liquid radioactive waste. This makes over a billion curies all in all, or about 20 Chernobyls.

The containers with liquid waste are a special headache for the ecologists. True, a new technology of converting the

potentially dangerous liquid waste into glass blocks has been introduced at the Mayak plant. This considerably diminishes the probability of accidents, though it doesn't rule them out altogether. However, so far only an insignificant part, about 70 million out of over 900 million curies, has been glassified.

A no smaller concern is caused by the radioactive reservoirs overfilled to the critical level. They appeared after a dam was built in the upper reaches of the Techa River. They believe at the Mayak plant that all problems could be solved if an atomic power station using prompt neutrons were built. Thus three objectives can be reached at a time: radioactive water can be used for cooling the reactor and turned into steam; plutonium which has accumulated at the plant will be "burnt" as fuel and, lastly, the new power station will replenish the shortage of power in the Chelyabinsk region.

The unprecedented idea of building the Southern Urals Atomic Power Station suggested by the Ministry of Medium-Size Machine-Building a few years ago was met with applause, and only the Chernobyl catastrophe prevented the implementation of this extremely dubious project.

Alexander Penyagin who headed the USSR Supreme Soviet's subcommittee for atomic energy and nuclear ecology claims that it's not only immoral but also dangerous to build an atomic power station in an ecological disaster zone in the immediate vicinity of a city with almost 100- thousand-strong population.

A year ago a united expert group of the USSR Planning Committee and the Union Parliament came to the conclusion that the project was "scientifically ungrounded and unpracticable." The residents of Chelyabinsk said their unanimous "no" to the project at a referendum which, true, had no legal power. However, this is not yet the end of the story. The Mayak experts revised the project, and a month ago Yegor Gaidar signed a document unfreezing the building of the power station.

In all probability, it will be much more difficult to talk the population into "freezing" their opposition to the project.

Caesium Contamination Detected in Penza

*PM1311102592 Moscow ROSSIYSKAYA GAZETA
in Russian 12 Nov 92 First Edition p 1*

[Unattributed report under the "Yesterday, Today, Tomorrow" rubric: "Echo of Chernobyl"]

[Text] Researchers from the "Koltsovegeologiya" Organization, which was commissioned by the Russian Government to track down victims of the Chernobyl nuclear power station accident, have presented an alarming picture of radioactive contamination in Penza.

The radiological service has discovered more than 1,000 small areas of land in the oblast center which have been contaminated by caesium. Special detachments are now decontaminating those areas of land.

Altay Officials Resurrect Plans for Controversial Katunskaya GES

93WN0110A Moscow TRUD in Russian 4 Nov 92 p 2

[Article by Yuriy Tokarenko: "The Death Project: Advocates for the Construction of the Katunskaya GES Attempt To Make It a Reality in the Altay"]

[Text] Novosibirsk—It was an alluring idea—to build a hydroelectric power plant on the Katun River. "Imagine,"—the idea's initiators tried to convince people,— "there will be so much energy, that..."

They were concerned for their native Gornyi Altay, which does not have enough electricity. And while they were busy being concerned, the project appeared. But here's the problem: based on a series of studies, the Russian Federation Supreme Soviet commission on ecology announced its verdict: the project is insolvent, its financing will be withdrawn, and a liquidation commission will be created.

However, times change, and with them changed the status of the Gorno-Altay Autonomous Oblast, which allows it to make laws independently. Sovereignty inspired the project's ideologists and advocates to new efforts—its chief engineer and construction director, A. Pigalev, and Altay Republic Supreme Soviet chairman, V. Chaptynov. They began to "nudge" their baby along again: the GES [hydroelectric power station] must be built!

This was followed by the first protest from neighboring oblasts belonging to the "Siberian Accord" association. At the insistence of Novosibirsk Oblast leaders, an expert commission was created, receiving at its disposal the conclusions of independent scientists, and analyses made by many organizations.

I became acquainted with them thanks to the chairperson of the Committee to Save the Rivers of the Ob-Irtysh Basin, G. Kuchina. Galina Nikolayevna has compiled a dossier of many volumes on the problems of the Katunskaya GES.

—First of all,—says G. Kuchina,—this GES will not solve the Altay's energy problem, where every year up to five million kilowatt hours are wasted. Besides this, it does not take into consideration the seismic activity of this region, which has already experienced an earthquake with a force of 10-12 points,—after all, the dam is designed for only seven points. The Institute of Mathematics at the Siberian Division of the Russian Academy of Sciences has calculated that in the event that it breaks, a gigantic, 20-meter wave will reach Novosibirsk in literally hours, destroying everything in its path.

But this is not all. The Katunskaya GES will doom the rivers' flood plains to eutrophication, which will be followed by famine and the destruction of the environment. The Novosibirsk GES will find itself without water.

It is true that lately the project's developers have been talking in the newspapers about certain changes in its parameters. Allegedly, the dam's height of 180 meters has been decreased to 50 meters, the size of the reservoir has been reduced. However, there are no changes at all in the

working project documents received from Gorno-Altay. What is pushing them to be this cunning? Could it be the fact that out of the 59 million rubles already spent on the realization of this project, the construction directors have only been able to account for 19, putting nearly 40 million under the heading of "miscellaneous"? Now, like it or not, nobody will be the wiser...

This information is already worrisome enough. We cannot help but recall other facts.

Back in April, 1990, a public scientific conference in Novosibirsk expressed the unified position of experts in various fields: realization of the Katunskaya GES project will be an impetus towards global ecological catastrophe.

And how does the project threaten Siberians, whose health is, even without it, worse than average for Russia? I took this question to a person whose name is pronounced with respect by medics and environmentalists all over the world, the initiator of the "Living Earth" concept of human survival. An active member of the Russian Academy of Medical Sciences and the Russian Federation Academy of Natural Sciences, director of the Institute of Human General Pathology and Ecology at the Siberian Division of the Russian Academy of Medical Sciences, V. Kaznacheyev reminded me of a forgotten fact:

—The idea for the Katunskaya site goes back to 1937. A country where millions of lives were burned in a human oven, understandably, would not have begrudged itself new victims, colonizing Siberia for the sake of the raw material, manufacturing and industrial, military base. And now the renovated project, a child of the totalitarian regime, the birth brother of the Belomorkanal and Magnitka, built on bones, has come into its own. The proposed changes are only cosmetic, and do not decrease the potential harm...—Katun Canyon is a natural paleo-center for a geochemical anomaly,—Vlail Petrovich demonstrated on a map.—Here, on the Earth's surface, polymetallic ore combinations show up that contain a large assortment of elements capable of having an unfavorable effect on humans. These are mercury, arsenic, antimony, cadmium and so on. Any kind of powerful technogenic interference, like the construction of the GES, carries with it the possibility of extremely dangerous consequences for this region of Gornyi Altay. It will lead to an increase in the general concentration of microelements and their combinations that are harmful to our health. They will simply leak out, uncontrollably. A risk of ecological catastrophe will arise on the scale of the entire Ob River Basin and its shelf in the Ledovityi Sea.

Even today, according to medics, like a science fiction disaster movie, we can roll out the details of the effects. A rise in moisture in the air will lead to a change in climate and an increased risk of mercury and other toxic combinations getting into the lungs. A change in the biospheric structure will cause a rise in the number of encephalitic ticks—the scourge of Siberia, for which no antidote has yet been found, that will lead to an explosion of infectious and animal-carried diseases. One more detail—if the Russian

rivers up to the Urals can cleanse themselves in 20 kilometers, then in West Siberia, which will have to deal with the effects of the project, it takes 200 kilometers. Even now, states V. Surzhikov, Institute of Complex Problems of Hygiene and Occupational Illnesses at the Siberian Division of the Russian Academy of Medical Sciences deputy director, the Siberian rivers have become arteries for all kinds of infections and chronic illnesses.

V. Kolyado, head of the Altay Kray Laboratory for Problems Concerning Health Maintenance in the Population, citing studies made by specialists in Barnaul, quotes significant figures: the mortality rate in the kray from malignant formations has risen by seven times.

According to a medical and biological study done on the GES project, heavy metals are already present to one or another extent in the bodies of thirty percent of the residents of the Katun's banks who participated in the study. In one third of those tested, a high percent of carriers of defective genes was discovered. Signs of disease in internal organs point to mercury poisoning microsystems. These heavy metal combinations have been found in the needles of trees, and in lichens and edible plants. The greatest number of illnesses of the digestive tract, kidneys, cardiovascular and nervous systems are actually noted in the region of the future range of the hydroelectric power plant, where the total amount of mercury in the water and in basic human biological fluids is especially high. What will happen when the water rises, and begins to wash the mercury and arsenic directly down from the cliffs surrounding the river?

The joy Russians experienced with the end of the voluntaristic epoch of the redirection of the northern rivers and other senseless projects has, unfortunately, turned out to be premature. The transfer of power to local authorities has become far from a guarantee that human rights will be observed or that natural riches will be preserved for our children and grandchildren.

Representatives of the medical and biological sciences are convinced that the realization of projects like Katun can be put under the category of international ecological arbitrariness. The situation, they believe, requires a legal evaluation. And on an international level.

Greenpeace Voyage Into Kara Sea Detailed

93WN0100A Moscow KOMSOMOLSKAYA PRAVDA
in Russian 31 Oct 92 pp 1, 3

[Article by Kirill Belyaninov (Kara Sea): "How I Transgressed the State Border"]

[Text] The flags beat your hands, as the damp sleet and wind filled the squares of fabric.

"You stop that!" a senior seaman with an extremely threatening appearance ran across the deck to us, jumping over the towing cables which held the Greenpeace yacht, Solo, tight to a pair of patrol boats.

But Magnus Ludvigson, who was standing watch, understood nothing. He merely smiled broadly and pointed to the nearest flag with outspread hands. It seems it was Swedish.

"An order was given not to raise any flags! I will shoot!" and the senior seaman, cursing, started to pull out an automatic rifle. The gun got stuck and would not come out.

Here we must digress and explain that in general, members of Greenpeace ecological expeditions are always being arrested everywhere. They were "taken in" during protest actions at the testing grounds in Nevada, Novaya Zemlya, and Mururoa. They were arrested during the blocking of nuclear submarines, nuclear power plants, and discharges of chemical wastes, during the campaign against killing whales, and in hundreds of other campaigns. The schooner Rainbow Warrior-I was completely blown up in the port of Auckland on a mine laid by French special services. But what can be done, when on the first day of its existence, Greenpeace declared that general human laws, the laws of preservation of life on earth, are much higher than laws on state borders?

That was their point of departure.

From the KOMSOMOLSKAYA PRAVDA File

The motor yacht Solo was built in the Hamburg shipyards in 1977. About 10 years later, it was bought by the Greenpeace international ecological organization. Representatives of 10 countries participated in the expedition to the Kara Sea: Sweden, Great Britain, Holland, Germany, Switzerland, Ireland, the United States, Canada, Zimbabwe, and Russia.

The Amsterdam-Murmansk Crossing

The most popular thing in Murmansk are bananas. Within a couple of hours, lines began to form at the ladder of the Solo, which was moored at the main wall of the seaport. The free bananas were being given out by military servicemen of the border forces, customs officials, Murmansk Greenpeace activists, and a large number of girls who were students at the local pedagogical institute.

The only person who never had anything to do with the bananas during all the time of the "Murmansk moorage" was the very serious lieutenant colonel of the border troops. The lieutenant colonel had no time for fruit. He was worried about whether the Solo would make it to the Kara Sea, since it had permission only for coastal navigation along the Russian shores.

"These are strange people anyway," the captain was surprised after the Solo had already departed from the mooring wall of the Murmansk port. "As early as summer, about 30 newspapers had written that in October Greenpeace would go to Novaya Zemlya. What about them, do they not read the newspapers?"

The Murmansk-Kara Strait Crossing

In Murmansk, along with a photography group from the Panorama program, the expedition was joined by People's

Deputy Anatoliy Mostovoy. After joining them, the deputy disturbed the crew somewhat: Within an hour the door to his cabin was adorned with a sheet of paper with the following notice written carefully in Russian: "Cabin of a people's deputy of the Russian Federation. Diplomatic immunity. Entry forbidden."

"What kind of diplomatic immunity can there be on board a ship?" asked boatswain Suzie Foreman, whose appearance rather reminded one of an eighth-grade school girl in a specialized mathematics school. "Here everyone, right up to the captain, cleans the toilets and does the dishes...."

But the deputy was simply preparing for the forthcoming conflicts with the border guards.

From the KOMSOMOLSKAYA PRAVDA File

"The burial of radioactive wastes from the repair, modernization, and operation of nuclear-powered ships of the Murmansk Maritime Shipping Line was conducted in the sea from 1964 through 1986. The burials....were conducted based on decisions of the USSR Government.... There was no monitoring of the burial of solid radioactive wastes."

This document appeared as a result of an excursion of a group of people's deputies of Russia to the nuclear testing ground. After studying the archipelago, the deputies reached some fairly unexpected conclusions: The radiation situation was completely in order, the tests should be continued, and the size of the testing ground itself could easily be reduced by one-third after the beginning of the "construction of state tourist and health complexes." (!)

Crossing the KARA Strait

In spite of its long-standing inclination to commit illegal actions, Greenpeace prepared seriously for its trip to Novaya Zemlya. Official requests to conduct research were sent to the Ministry of Defense, the Ministry of Security of the Russian Federation, and the Ministry of Foreign Affairs of Russia, and Greenpeace placed orders for several international companies to prepare detailed reports on the situation in the places where nuclear wastes had been dumped....

The commander of the border patrol ship Ural did not know all this, and in principle he was not supposed to know. He began to pursue the Solo from the moment it entered the narrow strait which separates the Barents Sea from the Kara Sea.

During the first two hours of the pursuit, the Ural captain did not do anything special: He followed the Solo at a distance of two nautical miles, and that was all. And it was not until the Greenpeace ship had only a couple of miles to go before entering international waters that the "border patrol" unexpectedly made contact and transmitted on the air in English just one sentence: "Solo, stay moving," which, to the considerable surprise of the crew, literally meant "continue movement." Albert Kieken translated the sentence and acted completely in keeping with the instructions from the military.

The Kara Strait-Novaya Zemlya Crossing

"No, I still do not understand anything," Deputy Mostovoy did not cease to be amazed. "Right before we left Murmansk, I sent a letter to the minister of security, reporting that the ship was entering the Kara Sea. And then that same lieutenant colonel came to me and said that the 'go ahead' had been received. And here they are firing...."

But in the meantime, relations between Solo and the pursuing Ural were developing quite peacefully. The captain of the patrol ship was interested in the navigation equipment of the ship being pursued, and the yacht's captain answered his questions thoroughly and in detail. The absorbing conversation between the two seamen was interrupted only when it was necessary to deliver a personal report to Deputy Mostovoy. The division commander of the border ships reported that "environmental protection activity was incompatible with the calling of a people's deputy."

It was not possible to learn the name of the author of the new concept in ecological policy until a week later: Captain First Rank Nachevnov.

From the KOMSOMOLSKAYA PRAVDA File

In spite of the year-long moratorium on nuclear testing on the Novaya Zemlya testing ground declared on 26 October of last year, in February 1992 President B. Yeltsin issued Edict No. 194, with the caveat "Not for the press," concerning the continuation of work for preparing for more explosions on the archipelago.

The condition and degree of preservation of 15 nuclear reactors, six of which are loaded with fuel, and 17,000 containers dumped in the 12-mile zone near the Novaya Zemlya archipelago are not known. According to preliminary estimates, the pollution levels in the region of the archipelago are 3,200,000 curies.

The Kara Sea. Twenty Miles From Novaya Zemlya

"The intensified version of service" in the Novaya Zemlya garrison was declared in vain. Two years ago, four activists from the Greenpeace schooner actually did land on the archipelago, but at that time the plans of the Solo's crew did not include landing or even approaching the coast.

"The probability of your actually receiving significant doses of radiation is extremely small," John Large, the expedition's scientific consultant, explained to us before the boat was launched. "But nobody has conducted any monitoring in these waters."

Six of us, armed with dosimeters and video cameras, got into the boat.

'Violations'

We noticed a large ship, which looked quite civilian, even though it was named Mars, before we got five or six miles from the border of the territorial waters. It was clearly moving to intercept us, crossing our course and moving almost five times as fast as our boat was.

The first mate, Ulf Birgander, shoved a radio into my hands: None of the boat's crew spoke Russian.

"You must halt your dangerous maneuver and wait for the border ship to approach," the Mars made a brief comment on the situation.

"But we are in international waters..."

"I repeat..."

"Are you a military vessel?"

"No, we are a hydrographic ship of the Academy of Sciences."

And here the seasoned Greenpeace members lost their nerve.

"I have never in my life seen a civilian vessel try to seize another civilian boat," Ulf admitted.

Seizure

The Ural was clearly going to board the Solo without ceasing fire.

The next two hours were spent searching. Dozens of armed seamen crowded in front of the blueprints of the ship, trying to find the radio room. Two officers were talking with the captain on the bridge, looking for violations of the "Law on the State Border." People's Deputy Mostovoy, in turn, was looking for violations of the "Law on the Status of the People's Deputy." It seems he found six of them.

"Well what would it cost them to wait just a half hour! If they need to have a violation so much, in that amount of time our boat would have entered the 12-mile zone," the campaign coordinator John Spreng, who was in the Solo's crew cabin, was amazed. "And so..."

The officers listened attentively to this advice and, it seems, were offended. But the Solo crew as usual fed bananas to the seamen, who had still not found the radio room.

The Kara Sea-Tyva Guba Bay Crossing

The border guards allowed them to use the satellite communications once. So that the captain could speak with the Greenpeace headquarters in Amsterdam. But they had barely "unsealed" the radio room when the telephone rang.

"It is from Amsterdam," Albert told the border patrolmen curtly. And then right on the air, he gave a telephone interview lasting almost a half hour on a popular Dutch television program. The officers did not understand Dutch....

Within two hours after it started towing, the Ural's engines broke down. So there were three all the rest of the way: the patrol boat Ladoga had to tow both the disabled Ural and the Solo, which was in perfectly good repair.

"No matter what you say, my hippies do much better work than your military seamen do," noted Albert Kieken.

During the process of mooring, the outer wall of the cabin of the people's deputy of Russia and the bulkhead of the machinery compartment were soundly crushed.

The Bay of Tyuva Guba

Members of the commission reported briefly: The question of the Solo's guilt is not subject to discussion.

"But you are an independent commission," the coordinator of the Russian Greenpeace chapter, Dima Litvinov, was truly amazed. "Will you suddenly conduct an investigation and decide that not we but the border patrols are the guilty ones?"

"How can you be innocent if you are guilty?"—it was the commission's turn to be surprised.

In the meantime, the base had entered into market relations at accelerated rates. In exchange for T-shirts and sweatshirts with the Greenpeace emblem, they were offered caps, sailor caps, pea coats, striped vests, overalls, flags....

Somewhere in the Bay of Tyuva Guba, It Seems It Was at Night

A certain discrepancy appears here. In recent years the main and most noticeable kind of activity on the part of our government has been making requests for material and various other kinds of aid for a dying state. The aid is given, although not always, and each such gesture is accompanied by numerous expressions of gratitude from the Russian side. But when an independent international organization—Greenpeace, for example—appears and offers voluntarily and, which is no less important, quite free of charge, to render aid in saving our own northern seas, this organization is immediately deemed to be engaged in espionage.

This is not even about seizing a ship belonging to an international ecological organization, and in international waters, without any justification. It is simply that the small motorized yacht Solo offered the Government of Russia a unique chance to exonerate itself before all progressive mankind. In 1973, after signing the London Convention, which banned dumping radioactive wastes in the seas and oceans, the Soviet Union got carried away doing just that, right up until 1990. And if the government agreed with surprising speed to have the burden of the USSR foreign debt shifted to the shoulders of Russia, it was clearly in no hurry to declassify information about nuclear rubbish.

The sentence against the Solo crew was not pronounced for three days: immediate expulsion from Russian waters. It was stipulated, incidentally, that the crew's actions "did not cause any harm to the interests of the state," after which the reason for the expulsion of the ship became quite unclear.

Somehow, one does not feel like asking questions about what will happen to the nuclear dump in Kara Sea. Russia seriously thinks that the life and health of its citizens are a

purely internal matter which is not to be made public. The problem is that after leaving, Greenpeace has a habit of returning.

Ministry Holds News Conference on Spent Nuclear Fuel Problems

PM1611111392 Moscow Russian Television Network in Russian 1100 GMT 12 Nov 92

[From the "Vesti" newscast: Video report by M. Sarbaa, identified by caption, from Ministry of Nuclear Power Generation]

[Text] [Sarbaa over video of news conference] A news conference devoted to problems pertaining to spent nuclear fuel from nuclear power stations was held at the Russian Ministry of Nuclear Power Generation today.

A large proportion of the spent fuel is processed at a special plant in Chelyabinsk. Nuclear fuel from East European countries and Finland is processed at Chelyabinsk-65.

We learned at the news conference that difficulties have arisen with the transportation of nuclear fuel via CIS countries. Negotiations with a view to settling this question are under way.

Russia receives \$800 per kilogram of nuclear fuel to be processed. A total of 60 tonnes are processed in Russia. A nuclear waste storage facility is located in Krasnoyarsk. There are many other nuclear sites in Russia. Most of them belong to the military department. The time has come to build a new deep nuclear burial facility. It will be built taking account of the public's wishes on the basis of the new law on nuclear waste. [video shows news conference, unidentified nuclear power station, interior of nuclear fuel processing plant]

Deputy Nuclear Power Minister on Disposal of Spent Nuclear Fuel

LD1311103292 Moscow ITAR-TASS in English 1328 GMT 12 Nov 92

[By ITAR-TASS correspondent Anna Bakina]

[Text] Moscow, November 12 (TASS)—"Disposing used fuel from nuclear power stations without reprocessing is hazardous for the life of succeeding generations," Russian Deputy Minister of Nuclear Power Nikolay Yegorov told a press conference here today.

Used fuel contains such radioactive substances as uranium and plutonium. During reprocessing they are separated and can be used again while the resulting waste should be kept in ground storage facilities for tens of years and then buried in underground tanks.

There is a well-developed nuclear fuel reprocessing network in the world. For instance, Britain and France accept Western Europe's used fuel. Russia reprocesses the fuel of the former socialist countries and Finland where nuclear power stations were built at one time under the Russian blueprint. Reprocessing is very costly. Countries that

supply used fuel pay for this work in freely convertible currency, which certainly is one way to replenish the state budget.

Specialists at the Ministry of Nuclear Power say relationships with former Union republics, specifically Ukraine are a major problem. For the present, the reprocessing by Russia of Ukraine's used fuel is paid under old agreements, in roubles. However, the political situation calls for the adoption of new legislative acts regulating interaction between former Union republics which are now sovereign states.

A special bill is currently elaborated in Russia to solve radioactive waste management problems. The bill is now under consideration in the Russian Government. This document has one more significant innovation: In case a question on disposing used fuel in some or other area is raised, the bill stipulates that the issue is put to a wide popular debate.

Navy Sees No Threat of Nuclear Pollution From Komsomolets

*LD2411183892 Moscow ITAR-TASS World Service
in Russian 1701 GMT 24 Nov 92*

[by ITAR-TASS military observer Andrey Naryshkin]

[Text] Moscow, 24 November—The nuclear and conventional combat reserves of the nuclear submarine Komsomolets and its power unit are not explosive, and will remain that way however long the period, the ITAR-TASS military observer was told at the main staff of the Russian Navy today.

The reason for the enquiry was a report carried by the American ABC Television Company on Monday, saying that the submarine, which sank in the Norwegian Sea over three years ago, "is a source of strong radioactive pollution." Citing "a group of American and Russian scientists," the television company asserted that "the radioactive element, caesium, is leaking from the submarine, and within a year or two plutonium, the most toxic and dangerous element for every living thing, could get into the water."

According to the information of the main staff of the Russian Navy, based on the results of the work of a scientific expedition which visited the scene of the disaster in May and June this year, strontium-90 and caesium-137 are leaking from the sunken submarine in quantities no higher than 1 percent of the limits set by international norms, and the amount of plutonium leaking is no higher than 17 percent of those limits.

Captain First Rank Vladimir Lebedev, a highly-placed spokesman for the staff, admitted that a process of electrochemical corrosion of the submarine is taking place in the sea as a result of interaction between the submarine's titanium hull and the steel shell of the reactor. However, he stated that there is no need to speak of a threat of nuclear pollution at the scene of the disaster or of any real damage to the region's fish stocks in the foreseeable future.

As is well known, there are five submarines lying in the waters of the world's oceans, two of which are American, the Thresher and the Scorpion, which went down in the 1960's and 1970's. The process of the destruction of some of them has naturally gone much further than in the case of the Komsomolets. Possibly, this ought also to be taken into account when discussing the ecological safety of this submarine.

Norway Sees 'Little Threat' From Sunken Soviet Submarine

*LD2511092292 Moscow ITAR-TASS in English
0838 GMT 25 Nov 92*

[Text] Oslo, November 25 (TASS)—According to a spokesman of the Norwegian Foreign Ministry, radiation leakage from the sunken Soviet nuclear submarine, Komsomolets, now presents little threat to the Norwegian Sea. The Norwegian side disagrees with the view that there is an ecological threat to the area today.

These explanations came after Tuesday's meeting of Norwegian foreign ministry officials with experts from the state atomic energy inspection. Norwegian specialists, as seen from their conclusions, disagree with the ABC-TV news report that the radiation situation around the sunken submarine, which went to the bottom off the Norwegian coast in 1989, was threatening.

According to the conclusions drawn by Norwegian experts, the submarine, lying at a great depth, does not pose any environmental threat. Damage could be caused, they believe, by attempts to raise it.

Murmansk Region Nuclear Waste Site Revealed

*LD2211023092 Moscow Teleradiokompaniya Ostankino
Television First Program Network in Russian 2100 GMT
21 Nov 92*

[From the "Novosti" newscast]

[Text] It would appear that there are no more mysteries surrounding the problem of dumping nuclear waste. However, this is not so. None of the official sources mention a nuclear waste burial site in Andreyeva Guba in the Zapadnaya Litsa region of Murmansk Oblast. We have often mentioned that the nuclear waste situation on the Kola peninsula is catastrophic. The atomic icebreaker fleet and Northern Fleet are unable to cope with this problem on their own. That is probably why unreliable nuclear waste burial sites are being built randomly on the Barents Sea coast. Today, there are over 100 atomic submarines waiting to be broken up for scrap. A wrangle is going on among deputies as to where their nuclear burial site is to be; meanwhile, dumps are being built. If there is a secret that may damage human lives, it is a criminal secret. Nuclear burial sites at Novaya Zemlya have been made public today, albeit late in the day. The news of a nuclear dump built in the Motovskiy Gulf in Andreyeva Guba may also come too late.

The health of the naval personnel working on the site is now at risk; but it is a disaster for us all, since this

installation carries no guarantees of safety. [Video of site; people in protective clothing working inside an installation, a ship sailing at sea, aerial view of a harbor, military vessels, and an icebreaker.]

Poor Safety at Murmansk Nuclear Waste Facility Described

PM2411144392 Moscow Teleradiokompaniya Ostankino Television First Program Network in Russian 1800 GMT 20 Nov 92

[From the "Novosti" newscast: Video report by Dmitriy Kiselev, identified by caption]

[Excerpt] [Video opens with dim panorama] [V. Nechiporov, deputy chief of Murmansk Oblast Internal Affairs Directorate Criminal Investigations Department, identified by caption] At present there is no problem with the theft of nuclear waste and related substances in Murmansk Oblast.

[Kiselev] Staffers at the oblast Health and Hygiene Center's laboratory also gave us general reassurances. However, for some reason they called the test sample [kontrolnyy istochnik] of caesium-137 which we brought in iodine-131.

[Unidentified laboratory technician] It is very dangerous if swallowed, if you remember what happened in the Chernobyl disaster.

[Kiselev] While the laboratory technician was talking about Chernobyl, back at the nuclear fleet base the usual work involved in transferring highly radioactive waste—using it as fuel in the reactors and monitoring safety—was going on. In short, the usual sort of work involving caesium, cobalt, and uranium-235. We were allowed to film them emptying the reactor, but not when they were filling it. But everyone knows what is really going on.

[A. Zolotkov, engineer of the Atomflot RTV [not further identified] radiation safety service, identified by caption] This fuel, the fresh fuel which they are loading into the reactors, contains uranium-235, which is fissile. This means that it can be used in practice to create a nuclear explosive device.

[Kiselev] Well, may God preserve our Atomflot. But let us follow the trail further to a point 33 km along the highway from Murmansk to Pechenga. I came here last year, too, and the guards complained then that they had been without electricity for the lights, and thus without an alarm system, for eight months. Here is what they said then.

[Unidentified guard] We have no alarm system. The alarm system does not work. And we have no electric light.

[Kiselev] So anyone can come along, lift the lid of the burial chamber, and no alarm bells would ring to warn you?

[Guard] There are no alarm bells. Nothing.

[Kiselev] Now they have electric light and even a telephone. Inside the hut it is warm and comfortable. But... who knows?

[Unidentified man] We have no radiation meters at all. What kind of guard post is this, when everyone else has some kind of radiation indicating device, and here we are sitting on a mini-Chernobyl.

[Kiselev] They do not have the prescribed special clothing, weapons, or guard dogs. They cannot remember the last time they saw their chief, Engineer Kudrat Makhmudov, around here. Here we see a guard, a pensioner, getting around on skis. You have to look to make sure this is not a terrorist, especially since the fence is not secure. Right in front of the gate the barbed wire fence has fallen down. [video ends at 182037: video shows interviews, fuel loading operation, guard post at waste burial site]

TV Airs Kola Nuclear Radiation Problems

LD2911192192 Moscow Teleradiokompaniya Ostankino Television First Program Network in Russian 1400 GMT 29 Nov 92

[Video report from Kola Peninsula by correspondent Obukhova, including recorded comments by an unidentified man and a submariner—from the "Panorama" program]

[Text] The American ABC Television Company, quoting Russian experts, reports that plutonium could leak from the submarine Komsomolets, which sank in 1989. However, it seems this is not the only possible source of radioactive pollution of our northern waters.

[Obukhova] The effect of radiation on the health of northerners is unpredictable. Our medicine today is helpless and the people believe in miracle cures.

[Unidentified man] I think that here the Kola Peninsula will not be an exception, but a confirmation of the rule; that for a number of diseases, including cancers, and hyperradiation, there can be improvement and recovery.

[Obukhova] One can only speculate what has brought a worldwide celebrity straight from New York to these areas of increased radiation risk such as Zapadnaya Litsa, where the Northern Fleet has its atomic submarine base—now a nuclear dump. I managed to visit one of the superannuated atomic submarines. There are more than 100 of them in the Northern Fleet waiting to be scrapped. Now you can see the nuclear fuel waste being unloaded from a submarine's nuclear reactor, after which the submarine is taken apart and the parts which are a radiation threat, such as the reactor, are buried. Where? The answer, I learned, is in Motovskiy Zaliv in Andreyeva Guba, where the nuclear graveyard is situated. All the Novaya Zemlya burials, compared with those here, simply pale into insignificance. Here is the view expressed by a seasoned submariner, who preferred to speak off camera:

[Submariner] It is alarming that the Andreyevka graveyard, which came into being secretly, is hidden from the public gaze; and while the debate rages over where the nuclear graveyards should be, they are springing up spontaneously all over the Kola Peninsula. All this could not have failed to affect the environment. At some places in the Kola Peninsula—Verkhne-Tulomskiy, Porchnikha,

Pyalitsa—selective soil samples are giving readings of 800-900 Becquerels for strontium and caesium, which is 1.5 times above the international norms.

[Obukhova] The problem of burying nuclear waste must be solved today, since after all, the sources of its accumulation are superabundant. They include Kola nuclear power plant, the Northern Fleet, and the atomic icebreaker fleet. Meanwhile, spontaneous, unreliable nuclear dumps are proliferating, even in the Murmansk region, near the repair base of the atomic icebreaker fleet - on both land and sea. So there is probably enough radioactive rubbish for an atomic bomb.

There has been no decision on the fate of the atomic icebreaker Lenin, which has served 30 years and is now laid up in Murmansk port. They could go on deceiving the northerners with the claim that we have the most reliable radiation protection. But when you see the dosimeter readings exceeding the limits, you tremble for the people who work and live here. The statistics on illnesses at atomic military facilities are still kept secret, after all; as for the civilian ones, only half of the truth can be ascertained.

The accumulation of nuclear monsters in Kola is already bringing sorrow and tears. How many servicemen have died in the Northern Fleet in peacetime? I was unable to find out the exact figure at the headquarters of the Fleet. As long as the Kola Peninsula is militarized and the military-industrial complex is boss, there will be ecological chaos there. [video shows sick man; ships at Zapadnaya Litsa; correspondent clambering about aboard submarine; unloading of nuclear fuel waste; Motovskiy Zaliv; laboratory; Murmansk port; atomic icebreaker Lenin; Northern Fleet Headquarters]

Yablokov Interviewed on Nuclear Waste Issues

OW2711181192 Moscow INTERFAX in English
1729 GMT 27 Nov 92

[Report prepared by Andrey Pershin, Andrey Petrovskiy, and Vladimir Shishlin; edited by Boris Grishchenko; from the "Presidential Bulletin" feature—item transmitted via KYODO]

[Text] A special governmental commission established by directive of Russian President Boris Yeltsin will in two to three months make its recommendations regarding an array of problems related to the ocean burial of radioactive materials, including the submarine Komsomolets, which sank in 1989. The statement was made by Aleksey Yablokov, presidential advisor on environmental issues and head of the cabinet commission, during an exclusive interview with special INTERFAX correspondent Yevgeniy Terekhov.

He definitively ruled out that the commission would recommend the raising of the Komsomolets, saying that in the next two years, leakage of radioactive materials from the submarine would pose no real danger to the surrounding area. It was still necessary, though, said Yablokov, to come up with preventative measures, since it makes sense to assume that there was extensive damage to

the shells of the reactor and torpedoes, both of which contain plutonium. "In no case would it be possible to raise the submarine," emphasized Yablokov.

Touching on the burial of containers of radioactive waste in Russia's northern ocean basin, he noted that the government committee would have to receive absolutely reliable data, even secret data, in order to accurately evaluate the actual danger. Yablokov claims that "regardless of the fact that at least three thousand containers of radioactive waste and, apparently, more than ten nuclear reactors from our submarines and the icebreaker Lenin have been submerged in the Kara Sea, no extreme threat has yet been posed to the body of water." Yablokov noted that Russia officially does not accept toxic waste from the West, he did not rule out the possibility that "some may end up in the country" as a result of the activity of joint ventures. "The Russian Ministry of Security" said the advisor, "is disturbed by the activities of Western firms who, under a variety of pretenses, including in some cases the building of roads, are trying to pass toxic waste off on us." This is particularly in regard to Austrian enterprises, several of which have been observed by the Security Ministry carrying out such operations. Yablokov describes cases in which the administrators of Russian enterprises may unthinkingly agree to such projects, tempted by the generosity of Western firms who are ready to pay \$300- \$500 for the shipment of a truckload of soil.

The Yeltsin advisor called for Russia to immediately join the Basel Convention on dangerous wastes and their transportation, and also for the adoption of Russian laws on dangerous materials. The draft of this document is expected to be presented to the Supreme Council in the next six months.

Yablokov said that the president's environmental council had advised the government to consider seriously the establishment of a whole branch of industry devoted to handling particularly dangerous waste. He contended that this would require special firms, associations, and training centers.

The conversion of military industry, believes Yablokov, has already resulted in an 8

reduction in air pollution this year. This has, however, been accompanied by an increase in water pollution. The serious problems resulting were, said the advisor, explicable by the "transitional situation of the enterprises," which are now making the transition from one kind of production to another. As a result, environmental inspectors do not report violations, because they stand to get billions of rubles from the violators, and only millions of rubles from the state treasury.

Committee Created To Retrieve Buried Nuclear Waste

LD0112163292 Moscow ITAR-TASS in English
1315 GMT 1 Dec 92

[By ITAR-TASS correspondent]

[Text] Moscow, December 1 (TASS)—Russian President Boris Yeltsin signed a decree creating a special committee which will engage in retrieving chemical ammunition and

radioactive waste buried underwater, salvaging sunk combat hardware, as well as in averting ecological catastrophes on the water, according to the presidential press service.

The decree is called "On the Creation of the Committee on Special-Purpose Underwater Works at the Government of the Russian Federation". It appeared because of quite a few catastrophes which have taken place of late and resulted in violation of ecological stability in Russia and neighbouring states, the press service said on Tuesday.

Pollution Possible Cause of Astrakhan Mutant Pathogen

PM1711170192 Moscow Teleradiokompaniya Ostankino Television First Program Network in Russian 1800 GMT 13 Nov 92

[From the "Novosti" newscast: Video report from Astrakhan Oblast by Natalya Prokopyeva and Anatoliy Ivanov, identified by caption]

[Text] [Announcer] We are continuing our series of reports from our special correspondent in Astrakhan Oblast, which, unfortunately, is set to become a preserve for many long-forgotten diseases, and some new ones, unless serious measures are taken.

[Prokofyeva] [Video opens with shot of scientists testing strains of disease] A new disease, quite unknown to doctors up to now, has been discovered in Astrakhan Oblast. Its symptoms are similar to those of Marseilles fever. Scientists and specialists at the Astrakhan Anti plague Station and the Gamaleya Institute believe that its pathogenic organism is Rickettsia—a micro-organism, something between a bacteria and a virus. There is a theory that it has mutated as a result of a change in environmental conditions brought about by the Astrakhanskiy Gas Processing Complex, which emits up to 100,000 tonnes of harmful compounds into the atmosphere every year. Alas, the enterprise's design was based on obsolete technology which does not meet modern sanitary norms. We are paying dearly for these mistakes now. But, everybody knows that every coin has two sides to it.

[T.D. Makhatov, deputy chief of Astrakhan Oblast Administration, identified by caption] In addition I want to mention the huge national economic significance of this complex, not only for our oblast but, in principle, for a number regions in Russia too. Because the volume of natural resources processed here is enormous, and our task is to improve the technological level of processing to ensure that there are virtually no consequences for the population.

[Prokofyeva] Of course, this is easy to say. What is more, we have stopped believing the words of our major leaders. But times are changing, and in Astrakhan Oblast the administration and the sanitary-epidemiological services are working hand in hand today. This inspires hope, although, admittedly, there is a lot of work ahead. [Video shows laboratories for testing viruses, gas complex, conference of local leaders]

Residents of Russia's Far East Protest U.S. Company's Tree Felling

LD2711121292 Moscow ITAR-TASS in English 1034 GMT 27 Nov 92

[By ITAR-TASS correspondent Anatoliy Vostokov]

[Text] Khabarovsk, November 27 (TASS)—Russians residing in the far east sent a message of protest to the Russian and the U.S. Presidents demanding to stop cutting down trees in virgin forests of the Russian far east by the American Weierhouser Company, the PRYAMURSKIYE NOVOSTI newspaper reported on Friday.

The appeal which contains around 4,000 signatures, is supplemented by documents testifying that the American company has failed to keep its promise to restore forests in areas of trees cutting.

WESTERN REGION

Shushkevich Criticized for Backing Nuclear Power Plant Construction

93WN0135A Moscow KOMSOMOLSKAYA PRAVDA in Russian 19 Nov 92 p 2

[Report by O. Yegorova on roundtable: "Is One Chernobyl Not Enough for Us?"]

[Text] This dispute concerns everyone: whether there shall or shall not be nuclear power plants in Belarus.

Ye. Petryayev, professor:

After the return of Supreme Soviet Chairman Stanislav Shushkevich from the World Ecological Congress in Rio de Janeiro people heard for the first time since the Chernobyl catastrophe that it is necessary to develop nuclear power engineering in Belarus. Shushkevich stated officially that we must build at least two nuclear stations.

There was practically no public reaction to his statement. But now the "Life After Chernobyl" charitable fund, which I represent, has decided to publish the opinions of those in favor of nuclear power and those opposed; after all, this decision concerns not only us, but our children and grandchildren.

On what did Shushkevich base the need for nuclear power engineering in Belarus? First of all, the republic is poor in resources, and that means it has to depend on other CIS countries. Once we are power-dependent, we cannot be independent economically, nor politically.

Secondly—Chernobyl... It is true that an explosion occurred in a reactor; however, our reactors are poor. But you see, if one takes the modern western reactors, nuclear power is safe.

From my own viewpoint, neither conclusion, and there are others as well, can withstand serious criticism. And well, if we take the path to nuclear power engineering, will we really not have to depend on the supplier for the nuclear reactor itself, and for its fuel, and for radioactive waste

disposal? Once again we fall into a state of dependence—and just as severe—but this time on Western nations. Secondly, Western nuclear reactors are safer than ours; but after all, the risk is there all the same...

Since the Chernobyl catastrophe Belarus has suffered damage equal to at least ten annual budgets. There are more than two million victims—one in every four persons, like in the Great Patriotic War... If one took the cost of all the electrical power generated by all the stations of the former Soviet Union during all its years of existence, it would still not be enough to cover the damage.

Even today one-fourth of our population is living in contaminated regions. It is impossible to imagine how the republic can survive: 28 percent of the budget every year is spent on Chernobyl matters; and for just how many decades will this continue to go on?...

A. Kudelskiy, professor:

I do not believe that the power engineering program in Belarus has been thoroughly thought out. Too much here has not been considered. For example, expenditures for energy: they are about five times higher than common sense allows. For decades the republic has had industry foreign to it. We are producing tractors of a post-war model... And an unsuitable economy means—unsuitable power engineering. Our thinking is still linked to centralized production alone. We are still "suppliers." We are still not trading.

I am a member of the nuclear society of the former USSR, and I was shaken: it turns out that we were developing nuclear energy without any concern for anything else, and were merely creating monster-projects. And the expenses for disposal of waste products exceeded the cost of construction and the income from their operation!

A. Vecher, professor at Belarus State University:

By the year 2000, 64 reactors will have been put into operation. Fifty-four are being built, and 11 are at the planning stage. The tendency is such that no growth in nuclear power engineering installations will occur. Nevertheless, energy is needed and I would like to stress the advantages (and this idea is no less than 100 years old) of the so-called fuel [toplivnyy] elements. Experts affirm that by the year 2010 the capacity of installations on fuel elements will be on the order of 40 million kilowatts in Europe, and from 50 to 100 kilowatts in the United States. This proves that an alternative to nuclear power engineering exists, and a very convincing one.

We have this means in our republic, and it is not being utilized in all regions, to say the least; it is even purposely hushed up.

A. Stavrov, deputy director of the Center for Radiological Safety, Power Engineering and Environmental Protection:

We are currently examining ways for developing the power engineering complex of Belarus. We are not rejecting, but

are examining simultaneously the power supply, traditional power engineering, all alternative sources, and nuclear power engineering.

Now, when the question is one of the dependence of the fuel-to-power-engineering balance, one must understand one simple thing: only one kind of fuel—nuclear—permits purchasing the greatest amount of power to supply us for years to come, and not feeding a station "by the truckload" ["s koles"]. Moreover, does a great deal not depend on transshipment, and on fluctuation of market prices? The price of fuel resources is climbing, while at the same time the price of uranium is falling.

No one can deny the possibility of an accident at a power plant. We have just one possibility, but we are not realizing it—to prevent a discharge [vybros]. There is no such thing as an accident-free production process.

Inga Shmitz-Feuerhake, professor of physics, Germany:

People would gladly forget the catastrophe at Chernobyl, but you see Western reactors are also unsafe. The 1979 accident in the United States proves this. It was not a Chernobyl, of course, but what happened was not supposed to have happened. To this day no one knows how much radioactive material was released. Like everywhere, the government tried to keep the information secret.

It is even more surprising to hear the one and only argument of the nuclear proponents of Belarus: the economic independence of the republic. There is no reasonable alternative, they say. These are the very same arguments which in the West, in France for example, have become the basis of the state power engineering program. It is well-known that France utilizes 70 percent nuclear energy; but this program was adopted after 1973, after the so-called petroleum shock. Economists right now are in doubt of how to emerge from the nuclear shock.

Andreas Zeifert, sociologist, Germany:

I read an article in DER SPIEGEL with amazement, in which one well-known manager unequivocally stated that the nuclear programs were certainly not conducted by the economists, but by the politicians. Their calculations do not consider the cost of development, nor the cost of storage; nor, it goes without saying, the cost of eliminating the after-effects of possible accidents.

We believe that the most important source is the economy. The demand for energy is not a constant as they are trying to depict it here. It is necessary to lower this constant.

And I do not understand how this can be: we are now building a children's center for victims of the catastrophe, while 200 kilometers away, it suddenly appears likely that a new reactor will be built...

A Volkov, People's Deputy of the Republic of Belarus:

As a member of parliament I am a member of the parliamentary commission on Chernobyl; as a scientist I am director of an international radiation center, and I am

currently preparing materials for Strasbourg, for the Euro-parliament. I will be reporting all the information on Chernobyl, beginning with the discharges and ending with the health of the children.

This I can assure you: there will never be nuclear power stations in Belarus. Shushkevich will never get that far. After all, he has just delivered a report in Rio de Janeiro on children with cancer of the thyroid gland. And to speak of new reactors just a few days later?

How much did the Chernobyl tragedy cost? I have made the following calculations: 484 billion dollars to the former Union; to Russia, 174 billion; to Ukraine, 138; to Belarus, 171 billion. Just what does this mean? Russia, with her present budget, could pay this off in eight years; Ukraine, in 28 years; but Belarus would take 171 years! But how can one live without a budget? Where are we to get those 171 years?

I have been working in the zone for six years, and have covered it far and wide. I know the tragedy of my people. I will never forget what one middle-aged peasant woman said to me: "We can live here in the radiation. But there are no children's voices around us..."

Ukraine's New Environment Minister Views Priorities

WS0112133292 Kiev KYIVSKA PRAVDA
in Ukrainian 10 Nov 92 p 1,2

[Interview with Yu. Kostenko, Ukrainian minister of environmental protection, by G. Pyvovarov: "Yuriy Kostenko: 'Ecology Is the Most Efficient Economy'"]

[Excerpts] Yuriy Ivanovych Kostenko is one of the youngest ministers in the new Cabinet of Leonid Kuchma. He is 41 years old, born into the family of an office worker. His father is an engineer, and his mother is a teacher. After graduation from the Zaporizhzhya Machine Building Institute with a major in mechanical engineering, he worked as a chief engineer, junior researcher, and later research worker at the Ye. O. Paton Institute of Electric Welding. He is a Candidate of Technical Sciences and a Ukrainian people's deputy. Since September 1990, before being appointed as minister, he held the position of deputy chairman of the Ukrainian Supreme Soviet Commission on Ecology and Efficient Nature Utilization Issues.

He is married with a 12-year-old son. Asked about his hobbies, he responded that he had no time for them because he has no leisure time at all. To tell the truth, he managed to climb the Khan-Tentri Mountain, one of the world's 7,000 meter high peaks, this year. Alpinism is his long-time hobby.

Traditionally, his gave his first interview to KYIVSKA PRAVDA. [passage omitted on Kostenko plans to stay in office]

[Pyvovarov] You said that you had come up with some ideas. What are they?

[Kostenko] As a matter of fact, the ministry, and earlier the state committee, used to play an extra role: they reported

about the deterioration of the environment; they pointed out problems that had to be solved, but in practice they had no leverage to have any influence on them. So, the state had its own scapegoat to shift all the blame on. [passage omitted on the ministry's remaining inability to impact problem solving]

Proceeding from this, I outlined two priority tasks for myself. First, to reorganize the ministry into a new structure based on the function principle and thus ensure that it is actually able to influence the ecological policy and becomes a think-tank that would develop a scientific and technical strategy in this field. And the second task is to take budgeting into our own hands. In one word, the chief objective of the ministry is managing environmental protection activities and producing a single scientific and technical policy in this area. And finally, the deterioration of the ecological situation is caused by the industrial activities, so one should fight the cause instead of the effect, and create the conditions for the industry that would encourage it to introduce ecologically clean technologies and reduce the consumption of natural resources.

[Pyvovarov] For decades, the policy and economy has been "staging a fancy-dress ball" where ecology has only been a servant or Cinderella. Yuriy Ivanovych, how are you going to make it a rightful participant in this "ball"? Are there real conditions for that?

[Kostenko] So far, we do not have such conditions, but they are being created. The above mentioned law [Law on Environmental Protection] is a guarantee that ecology will become a rightful participant in the "party." Until recently, the environment allocations have been spent not where they were most needed, but in the areas with projects already under way or with the proper material and technical support. It was done, one should understand, by the Ministry of Economy without considering the situation and the demands of environmental protection. We would channel this money to the places where the situation is literally "hot." For example, to the Lysychansk-Rubezhansk or Donetsk-Prydniprovsk regions, where the situation is horrible. People there drink water containing hazardous substances exceeding all possible and impossible sanitary norms. And there is no other water, and no place to get it. Thus, being familiar with the situation, we could send those meager resources (representing less than 1 percent of the GNP, while in the developed countries it runs at about 5 percent) to the worst affected areas and efficiently utilize them. [passage omitted on enterprises bearing main responsibility for environmental problems, and lack of tangible effects from enacting environmental legislature]

[Pyvovarov] The future of the Chernobyl Nuclear Power Plant remains a pressing and sore issue. Yuriy Ivanovych, I would like to hear your opinion on this.

[Kostenko] As for Chernobyl, there can be no ambiguity—it needs to be shut down. As for nuclear engineering in general, we have certain contradictory points here. You know how we stand with energy resources. On the energy issue, we are completely tied down to Russia, where the

energy production is increasingly dropping. So, what should we do in this situation where our industry, especially heavy and mining, are so energy-intensive, and it would take years to carry out structural changes? Like all of the developed countries, we should orientate ourselves to our own energy sources. What sources?

We have coal and uranium. So, this is what we should proceed from when deciding about the future of nuclear energy: will we curtail it, or will we develop it, but indispensably in an ecologically clean and safe manner. If we go for the latter option, I can see the only safe solution: the creation of a closed technological and ecological nuclear power production cycle.

What do I mean? We extract uranium in Zhovti Vody and enrich it to the 0.7 percent level. It is designated for a certain type of reactors where the slightly enriched uranium becomes medium enriched and continues to be processed in the reactors fueled by it. As it is consumed, plutonium is obtained, which can be utilized at the new-generation stations—with the help of fast neutrons. There is practically no waste. This is my understanding of the technologically and ecologically closed cycle in nuclear engineering.

When Ukraine goes this way, as a minister, I will agree to that. If it continues to develop the way it is now—without national production of heat generating elements (TVELs), without radioactive dump sites—the area where we completely lag behind Russia, which can take advantage of this situation to exert political and economic pressure on Ukraine—then I am against such nuclear engineering, and we would have to get rid of it

Commentary Urges State Support for Aluminum Production

AU2811200192 Kiev URYADOVYY KURYER
in Ukrainian 20 Nov 92 p 12

[Commentary by Volodymyr Olefirenko: "Millions Under Our Feet"]

[Text] Why are thousands of hectares of rich Ukrainian soil covered with mountains of waste, slime, and unused ore? Much of what we have under our feet may, for example, serve as good construction material. These are crude low-grade bauxite and brown iron ores, dumps created by bauxite and iron ore mining enterprises, by-products of aluminum and electrometallurgical industries, and other alumina-containing substances.

While in a terrible financial situation, Ukraine is now wasting enormous means, particularly on importing bauxite. At the same time, it might be able to earn billions [currency not specified], had the production been rationally organized. Donbass, Dnipropetrovsk Oblast, and other regions are literally pleading with enterprising people: Take this into your hands. It is in your own and state interests. Besides, it is not so complicated.

The electrothermal procedure for processing iron and aluminum raw materials involves their electrosmelting together with lime and with the carbon reducer as a result of

which low-grade ferrosilicon and aluminum-calcium slime are produced. From it, alumina is recovered, and the residual product in the form of gray slime can be utilized as semifinished cement for quick-hardening foundations of subsurface mine shafts, road coverings, and also for oxidizing soils.

The raw materials may, for example, be obtained from Vysokopillya and Pivdenonikopolskyy [South Nikopol] deposits of bauxite, from Kryvyy Rih nickel and other iron-rich bauxite deposits, and "red slime" of Nikolayev and Zaporizhzhya aluminum plants. At these electrometallurgical and aluminum enterprises, the dumped gray slime may be successfully used for the production of high-grade cement and other construction materials that are in short supply.

It is necessary to revive Ukraine's aluminum industry and raise it to a new level. For this purpose, it is necessary to reassess the reserves and resources of aluminum ores, first and foremost, Vysokopils'kyy deposit, and give special attention to bauxites that can be processed (possibly in a mixture with imported raw materials) at Ukraine's aluminum plants. It is also necessary to adapt and restructure the existing electrosmelting aggregates and auxiliary equipment. It is time to create a single organizational structure for complex production and interaction of related enterprises.

We need reliable support from the state to provide Ukraine's industry with its own raw materials, reduce the expenditure on the import of bauxites, and attract national and private foreign capital. This would not only boost our aluminum industry but would also contribute to the improvement of its ecology.

Engineers Call for Justification of New Nuclear Units

WS1811133092 Kiev KHRESHCHATYK in Ukrainian
30 Oct 92 p 1

[Report by UKRINFORM correspondent Viktor Mazany: "Where Should One Store Radioactive Wastes?"]

[Text] Rivne. 28 Oct—Chief engineers of Ukrainian nuclear power stations [AES] have come to the conclusion that it is necessary that every new nuclear unit in all Ukrainian AES's be technically and economically justified before it is put into operation. This conclusion was reached at their meeting that took place at the Rivne AES.

It was noted that the future shutdown of the Chernobyl AES would aggravate the energy crisis. In order to prevent this, it is expedient to put into operation already installed and almost ready nuclear reactors at the Rivne, Khmelnytsky, and Zaporizhzhya AES. At the same time, the engineers paid attention to the issue of storing and dumping radioactive wastes. They decided to rely on the best technologies that the country's chemists can provide.

Article Supports Putting Part of Chernobyl Back on Line*AU1811140492 Kiev MOLOD UKRAYINY
in Ukrainian 5 Nov 92 p 1*

[Article by Olena Hubina: "The Power Unit Was Triggered in Order To Be Closed Down"]

[Text] After the "peaceful" atom entered all of our homes, radiation phobia has been forcing us to follow any events at atomic power stations with extreme attention. Recently, yet another concern took shape: Why was the third power unit put back on line after it had been closed down? It turned out that the third and first power units had been halted for repairs and reconstruction, because, in view of the problems that had arisen at the Leningrad Atomic Electric Power Plant, it had become essential to replace the equipment that had failed to operate. One billion rubles was spent for the reconstruction of the two units, and, recently, the third unit was put back on line. This was also done by way of preparing for the final shut-down that, in accordance with the decision adopted by Ukraine's Supreme Council, has been scheduled for 1993. Specialists explain that the greatest difficulties are due to the fact that, for the first time ever, three power units are to be shut down simultaneously. In Armenia, after the earthquake, two units were shut down, and they had a somewhat simpler design. However, unlike in Ukraine, the decision on shutting down the plant in Armenia has not yet been finally approved, and at present, in an energy crisis, voices demanding that the power units be reactivated are being heard increasingly often.

In order to close down the Chernobyl Atomic Electric Power Plant, it is necessary to have sufficient quantities of heat, water, and steam. The capacity of the boiler-house at the Chernobyl Atomic Electric Power Plant is insufficient for this, and that is why it has become necessary to build a new boiler-house. Even though the final touches are still being made to its design, the boiler house is already under construction. If the plant is closed down now and the units remain without the necessary amount of heat, a new disaster will occur.

Today, there is much talk about whether atomic power engineering needs to be developed in Ukraine and whether new power units should be built. It is important for us now to develop our own power generating program, because we are still working within a single power generating system, and reactors on our territory produce electrical energy for export. President of the "Ukratomenergoprom" [Ukrainian Atomic Energy Industry] Concern Mykhaylo Umanets, a former director of the Chernobyl Atomic Electric Power Plant, believes that Ukraine must very seriously think about its independence, and the latter is directly associated with independent power generation. In Ukraine, there are deposits of coal and uranium and, therefore, it is necessary to develop these two sectors. In Umanskyy's opinion, atomic power generation must be developed, although the enrichment of uranium and the reprocessing of waste fuel must be excluded from the nuclear industrial cycle. Soon, the Supreme Council will

discuss Ukraine's energy program. It has several possible directions, and it is now too early to say which will be approved by the deputies. However, one can be assured that the decisions on closing down the Chernobyl Atomic Electric Power Plant will not be reversed. Another thing may be a matter for concern: Will it not happen that we will become indifferent to the problems of the closed-down plant and will give up control over all those processes that will continue in the reactors for many years after the closure? It is on-line facilities that are supposed to be accounted for, while former ones tend to be forgotten.

Ukraine's UN Delegate Expresses Concern Over Chernobyl Situation*LD2411223792 Kiev Radio Ukraine World Service
in Ukrainian 2000 GMT 24 Nov 92*

[Text] The complexity and variety of problems brought about by Chernobyl require a greater involvement by the United Nations, its bodies, and special UN establishments in order to resolve them. This was stated by Borys Hudyma, a representative of Ukraine, when speaking at the second committee of the 47th session of the UN General Assembly on issues of strengthening international cooperation in the matter of alleviating the consequences of the accident at the Chernobyl nuclear plant.

Having expressed gratitude to a number of international organizations for their practical contributions to resolving the problems of Chernobyl, Borys Hudyma noted that one of the most complex problems, the resolution of which is topical not only for Ukraine but for the whole European region, is that of sealing the fourth power unit. Its present state causes concern, because the existing structure, known as the sarcophagus, cannot be called absolutely reliable. It does not ensure guaranteed radiation safety, especially under extreme conditions, in earthquakes, big storms, and so on.

The Ukraine delegation expressed the expectation that the help of the international community in alleviating the consequences of the Chernobyl catastrophe will yield results in the interests of both the people of Ukraine and the whole of humanity.

IAEA Specialists Declare Ukraine's Rovno Nuclear Plant Safe*OW271192192 Moscow INTERFAX in English
1908 GMT 27 Nov 92*

[Following item transmitted via KYODO]

[Text] The safety of the atomic energy plant in Rovno, Ukraine has been guaranteed, and there is no cause for concern over the supervision of all phases in the transfer of nuclear energy at the plant. This conclusion was reached by specialists from the International Agency on Atomic Energy after completing an inspection of the plant.

CAUCASUS/CENTRAL ASIA

Government Considers Natural Resource Use, Pollution Fees

93US0079A Yerevan AZG in Armenian 18 Sep 92 p 3

[Article by Armine Ohanyan: "Solution For Preventing Ecological Disaster Is Transition to Paid Utilization of Resources"]

[Text] **Armenia's Greens find the size of fees levied to be ludicrously small. And where are they going to come up with the money? Their assets are tied up in goods lying in storage, enterprise executives claim. * * ***

To determine the optimal structural variant of human society, one need merely examine the ecological condition of the territory on which that society conducts its activities. When the question is approached from this angle, our societal system is far from receiving high marks. The ecological state of our republic is calamitous—such is the conclusion based on studies made by the Ministry of Environmental Protection. And one should not assume that everybody at the ministry is a pessimist by nature. By simply examining the domain of environmental problems a bit more deeply, every individual approaching this question with bright optimism will arrive at the same conclusion.

Here is the picture: ecological disaster, extreme pollution of the environment, and total absence of intelligent utilization of natural resources. The Ministry of Environmental Protection is making efforts to correct the situation in some measure. This difficult problem, however, entrusted to the enthusiasm and hope of a group of specialists, is not an easy one to solve. We want to believe that the resolution by our Government in April of this year, entitled "On Establishing Fees for Exploitation of Natural Resources and Environmental Pollution," is a major stride along the road toward solving the problem. This resolution, initiated by the Government (a similar resolution was adopted in Russia in 1991) includes fees to be paid by establishments and enterprises for exploitation of natural resources and for environmental pollution. In addition, it is anticipated that means will be implemented for managing and administering fee payment for exploitation of natural resources and that a republic fund for environmental preservation will be established.

To become acquainted with the mechanism of clarifying and carrying out this resolution, we visited the above-mentioned ministry. The head of the economic division, Norik Hunanyan, explained that in the past fines set for environmental pollution were of a symbolic nature and that means of punishment were totally ineffective. At the present time that is being changed to realistic fees, which are determined by the amount of waste produced.

The resolution is still in the process of being formed; a final say on methods and principles has not taken place. The Ministry of Finance is acting with certain delays. Following final clarifications, industrial enterprises will be given methodological instructions on utilizing ways to exploit natural

resources. Then enterprises will have to complete appropriate documents in connection with exploitation of natural resources, dealing, for example, with utilization of water, building materials, and minerals. The tax inspectorate must enforce imposed fees. Monitoring responsibility within each domain is placed on the water distribution and sewage system, on the Armenian Industrial Building Materials Association, and on housing and public utilities and services authorities. Taking into consideration the fact that there are certain to be cases of deliberate concealment of facts, the ministry shall act as the oversight entity. Sums accumulated from the payments shall be distributed between the rayon council budgets, the ministry's environmental protection fund, and the state budget. The percentage ratios in this distribution have not yet been determined. All these amounts will be directed toward implementation of environmental protection measures.

The ministry's environmental protection fund is being prescribed to promote the implementation of broad environmental protection programs. Enterprises which have environmental protection programs will be granted loans or allocated amounts from this fund. Or let us say that an interesting project has been developed, a project which local industrialists find difficult to accept. The ministry will finance the project. When the project commences to pay off, the ministry will be repaid the loan. Lyudvig Nazaryan, chief of the republic inspectorate of the Ministry of Environmental Protection, cited the Vanadzor "Rubin" Plant as an example in this connection. In connection with the plant's production of carbide, he had ordered an engineering design package from one of the Saint Petersburg institutes. Upon receiving the project documents, however, he discovered many mistakes and deficiencies. Specialists at the Yerevan Information Institute expressed readiness to carry out the same work. Their proposed version was less expensive, more energy-efficient, and required a smaller workforce. However, plant executives had a preconceived notion about everything created in Armenia and refused the new design package. If the ministry had its own sources of financing, it would have paid for that work and would have implemented the project. All would have been winners in the final outcome, and the biosphere first and foremost.

The resolution will provide such an opportunity to the ministry. However, as Mr. Hunanyan mentioned, the resolution also has opponents. Certain specialists consider it superfluous, in view of the fact that the fee levying procedure must be incorporated into the tax law in a specified manner. In any case the purpose of the resolution is to keep those in check who take advantage of exploitation of natural resources and pollute the environment. It will convince people that it is more beneficial to improve production with limited expenditure, to reduce emissions, and to purchase equipment to install nonpolluting production processes than costly, endless fees reaching into the millions, despite the fact that at the ministry they also anticipate the financial inability of enterprises to comply. However, all shall be done to make it reality.

In order to substantiate the above, we shall cite a few figures from the table of fees specified for exploitation of

natural resources. In the case of commercial sale and consumption, a fee of 1,200 rubles per cubic meter of mineral water is prescribed. The corresponding fee for medicinal use of mineral water is 600 rubles. The extraction fee for copper ore is 0.28 rubles per tonne, 20 rubles per gram for gold ore, 20 rubles per cubic meter for granite, etc. In the case of discharging harmful substances into the atmosphere, a fee of 75 rubles per tonne of nitrogen oxide is specified, 600 rubles for hydrogen sulfide, 10,000 rubles for lead, 1,000 rubles for phenol, etc. Use of a devaluation factor is planned, a re-examination of fee amounts, and it is also possible that a steepening scale of fees will be applied in the case of exceeding allowable amounts of discharge.

At our request Mr. Nazaryan submitted a partial list of enterprises which have flagrantly exceeded permitted amounts of discharge into the atmosphere (the resolution will hit them first and foremost): the Yerevan Regional Heating and Power Plant, the Nairit Scientific-Production Association, the Polyvinyl Acetate Association, the Chemical Reagents Plant, the local construction materials combine (the old gypsum plant), the new gypsum plant, the Industrial Rubber Products plant, the Armenian Chemical Machinery [Hayk'immek'ena] Association, the Vanadzor "Rubin" Plant, the Ararat Cement Association, the Hrazdan Cement Plant, and the Hrazdan Hydroelectric Power Station; of the mountain quarry industry enterprises—the Agarak, K'ajaran, and Kapan combines; the Vanadzor Leather and Fur Goods Factory, the sewer systems of all cities and towns, etc.

A negative effect on amounts of emissions, stated Mr. Nazaryan, is exerted by interruption-type shutdowns in industry. Emissions are drastically lower when the chemical industry is operating in a smooth, uninterrupted manner, which becomes impossible especially with winter approaching. However, when studying the dynamics of the republic's environmental condition, there was noted a reduction of discharges as a result of production decrease in recent years and installation of new technologies and equipment.

Following submission of the official opinion in connection with this resolution, we decided to approach the republic's Greens organization, who are staunch supporters of the fight to protect the environment. While welcoming passage of the resolution, Hakob Sanasaryan spoke very negatively about the size of fees set, stating that they are laughably low. Mr. Sanasaryan explained that the need for the resolution in our republic was long overdue, but fee rates should have proceeded from practical realities. He noted that re-examination and correction of existing deficiencies of the resolution is expected. Only after that will its productive application become possible.

In connection with the resolution we also spoke with Mr. Aghajanyan, director of the Industrial Rubber Products Plant, which exceeded allowable amounts of discharge into the atmosphere, in order to learn his views on the matter. He was not familiar with the resolution and, after acquainting himself with it, doubted the possibilities of its realization. "First of all, how will the local councils handle

the fees collected from us? I doubt that they will serve environmental purposes," said the director. "In addition, our products are presently stored in warehouses. We are unable to sell them, and have no revenues to pay wages. How are we going to be able to pay fees?"

Environment Minister Assesses Armenia's Energy Crisis

93US0079B Yerevan YERKIR in Armenian 19 Sep 92 p 4

[Interview with Minister of Environmental Protection Karine Danielyan by Armine Hakobyan: "All Aspects of an Alternative Are Also False"]

[Text] At a time when the bread problem is preoccupying all of Armenia, it seems superfluous to talk about the environment. Just as yesterday, however, this issue is of the same pressing urgency today. In 1989 the nuclear power plant was shut down. This left us believing that we had accomplished our task, forgetting that pollution is caused not by the nuclear power plant alone. There is another winter ahead of us. And both aspects of the alternative present a danger for us: the environment, or energy? For clarification of this and similar contradictory fundamental issues we address Minister of Environmental Protection Karine Danielyan.

[Hakobyan] Mrs Danielyan, in your view, how will the fundamental question facing us be solved: in favor of the nuclear power plant, which will eliminate the shortage of energy, or in favor of preventing poisoning of the environment?

[Danielyan] In all probability our "environmental" interview will continuously involve problems dealing with energy and the economic crisis. But what can we do? It is a fact that it is impossible to imagine solving basic problems dealing with the environment without considering these problems within the context of the economic system. They are interlinked.

Yes, there is a profound energy crisis in Armenia, as a result of which our economic complex is paralyzed. This situation indirectly affects preservation of the environment: we only need mention cutting of trees, and using Lake Sevan as a source of energy. And, of course, the fundamental question of the nuclear power plant. I was a member of a government commission, and I know that the ministries of environmental protection and health have a negative attitude toward the plan dealing with resumption of operations of the nuclear power plant. However, I can understand the economists and industrialists, who are doing everything to carry out that plan, bringing forth the following arguments: in case of a protracted energy crisis, the possibility of death of the nation is far greater than the possibility of an earthquake which could cause a nuclear accident.

The Ministry of Energy is trying to find an alternate solution to the problem: plans for small hydroelectric power stations are being developed. Several projects have already passed the environmental muster and have been

approved. The "Atsukh" [Coal] program is being developed: certain steps are being taken in the direction of developing alternative energy. However, all these undertakings demand time and input.

For the coming 2-3 years, Lake Sevan on the one hand and the nuclear power plant on the other are being considered as a realistically feasible energy source. Both are unacceptable from the environmental point of view.

[Hakobyan] Armenia's capital today is a peculiar example which can serve for studying the air pollution problems of many of the world's large cities. Industrial enterprises operating in Yerevan, thermal electric power facilities, and tens of thousands of automobiles have brought it to such a state.

What improvements have taken place in the last 2 or 3 years?

[Danielyan] That is true. A peculiarly complex situation of atmospheric pollution, which needs to be studied seriously and from many aspects, is characteristic of Yerevan. I have dreamed of having the opportunity to study the toxic haze in the city of Yerevan, enabling me to carry out a serious science and technology project. And now, when it seems like I am given that opportunity, I am unable to carry it out. Under existing conditions, when as a result of the energy crisis laboratories are having difficulties in accomplishing work performed in the past, when because of gasoline shortages sample collection has become more complicated, I have been forced to postpone execution of the project.

It is a paradox: the economic crisis has certain "positive" environmental consequences. For example, in 1991 aggregate emissions of pollutants in Yerevan was 44,000 tonnes, while in 1986 that figure totaled 84,000 tonnes. This is not a result of installation of new antipollution equipment or new technologies, but rather a result of shutdown of industry.

On the other hand, sometimes also when plants resume their operations, because of the intermittent stoppage of gas and electricity, which has a disruptive effect on production processes, burst-type emissions take place. In this case our agencies, in accordance with the law, levy fines on the enterprise, although its culpability is only partial under the circumstances.

Automotive emissions have also decreased. Even though gasoline quality has worsened, total gasoline consumption has gone down. In this area productive work is being accomplished in reducing the amount of fumes emitted by motor vehicles. Positive changes are expected in the future.

[Hakobyan] Our problems dealing with the environment do not pertain to the city of Yerevan alone. This is a fundamental issue which applies to the entire country. People are especially concerned by the fate of Lake Sevan.

[Danielyan] The fundamental issue in relation to Lake Sevan is one of Armenia's pivotal environmental issues.

Ways to improve quality of the water are known: restoration of the lake's water level (even if just partially), and elimination of the flow of wastewater toward Lake Sevan.

Studies show that the lake has exceptional capability for self-cleaning. One merely needs to extend some assistance. In recent years, thanks to inflow from the Arp'a River, Lake Sevan's water level has begun to rise. Certain work is being carried out also in the direction of reducing the amount of industrial and communal wastewater discharge and agricultural runoff into Lake Sevan. In the last two years, however, in order to receive power from Lake Sevan, approximately 510 million cubic meters of water was discharged (150 million cubic meters in 1991, and 360 million in 1992). According to calculations, this use of the lake's water corresponds to a 43 centimeter drop in water level. One must also take into consideration that last year there was abundant rainfall; otherwise the losses would have been more appreciable.

[Hakobyan] It is our understanding that a national environmental program is also being developed.

[Danielyan] The first stage is the national plan formulation process. The environment is not a separate, independent domain. Therefore practically all problems must be addressed jointly with other ministries and scientific research institutes. Such joint activities have already commenced. In addition, integrated plan drafting and testing is also being developed in various domains of the economy. This means that all our plans and all activities are interlinked. We should also note that a closely-integrated economic system for solving fundamental environmental issues has been proposed. It has received government approval and will soon be adopted.

However, no problem can be solved by any government without the assistance of the people. Let me cite a few examples. First, there is the matter of chopping down trees on the territory of our republic. It is understandable that under cold winter conditions many people chopped down roadside trees to heat cold apartments. This is intolerable: healthy mature trees as well as saplings were cut down in addition to dead trees. Trees are being cut for other purposes as well: to build garages, or to have a fresh pine tree for seeing in the New Year. This is absolutely intolerable.

The second example is a criminal act being committed by garbage truck drivers. Exploiting the fact that gasoline is a highly valuable commodity, they do not haul the garbage all the way to the dump, but dump it in various parts of the city (especially in green areas). They sell the unused gasoline or put it to personal use.

Turkish Company Submits Proposals on Cleanup of Caspian Sea

*NC1411214492 Baku Radio Baku Network in Azeri
1700 GMT 13 Nov 92*

[Text] Prime Minister Rakhim Guseynov received the visiting delegation of a Turkish foreign trade company today. Director Sener Musaoglu submitted proposals to Guseynov related to cleaning the Caspian Sea and the Apsheron peninsula of the pollutants from oil wells.

Prime Minister Guseynov said that the Azerbaijan is prepared to cooperate with companies wishing to contribute toward the republic's economic development and the removal of ecological problems.

A decision was made to have the experts of the two sides work to draw up concrete proposals.

Kyrgyzstan Issues Decree on Environmentally Clean Energy

*OW1811161492 Moscow INTERFAX in English
1438 GMT 18 Nov 92*

[Following item transmitted via KYODO]

[Text] Kyrgyz President Askar Akayev has issued a decree establishing an independent business project entitled Kun ("Sun") within the framework of the national energy program. Its goal is to assure scientific guarantees, industrial development, and the large-scale introduction of new techniques and technology for encouraging the use of renewable sources of energy.

Commenting on the president's decree, Alaibek Abozov, the project's general director, said at a Wednesday briefing for journalists that Kyrgyzstan must soon solve the problem of assuring the republic with energy, while taking into account its natural resources. The subject was raised because of price increases for energy imported from Russia and Kazakhstan and due to the necessity of using environmentally clean sources of energy such as solar, wind, biomass, and hydroelectric. The environmental and climatic conditions in Kyrgyzstan are such that it receives three thousand hours of sunlight a year, and can expect 500,000 cubic meters of methane per year.

BALTIC STATES

Estonia's Environment Minister on Sillamäe Pollution

*93WN0104A Tallinn RAHVA HAAL in Estonian
12 Sep 92 p 3*

[Article by Anneli Rõigas: "Environmental Minister Tõnis Kaasik Comments"]

[Text] Recently, media from the Scandinavian countries has once again been giving a lot of coverage to Sillamäe, where the wall of waste repository at the metallurgical plant is said to be on the verge of collapse, and the extent of radioactive waste that could seep into the Baltic sea is, and understandably so, causing serious concern to the neighbors. Matters related to environmental protection in Estonia have also provided material for several other stories cropping up in the foreign press these days. It was only last Friday that the 22-tonne metal container originating from Estonia returned to Tallinn, because the Swedish authorities found its radioactivity exceeding allowable limits and, thus, denied the vessel permission to land.

A little while earlier, there was the return voyage of the Estonian Marine Shipping vessel Heltermaa, also dubbed "the flying Estonian" that marred Estonia's reputation in

several countries even though, judging by the press conference given by persons involved, it would seem that nothing harmful was being hauled. We also got a lot of attention with the crude oil disaster at the harbor. And, in addition to these, the story of the so-called German tires, along with the Estonia-bound shipments of other materials considered waste by the rest of the world. In most of these cases, officials have tried to put things in a favorable light for themselves.

I have asked Environmental Minister TONIS KAASIK to comment on some of the environmental stories proliferating recently.

Commenting on the increased interest in pollution at the Sillamäe plant, as evinced by the Nordic countries, Tõnis Kaasik says that things at Sillamäe are not any worse than they were before. "At the same time, it does not mean that anything has improved there either. The Sillamäe plant is priority one for our ministry. Preparations are under way currently to determine exactly how extensive the pollution is at Sillamäe, and what are the substances that are causing harm to the environment.

So far, all we have is the official data from Russia's Ministry of Atomic Energy which shows that production activity at the plant has resulted in **5.4 million tonnes of toxic and radioactive substances** in Sillamäe. We also have to determine what could be done with these substances." According to Tõnis Kaasik, Sweden has been a very active participant in studying and solving the problems of Sillamäe. Cooperation for the study and elimination of pollution at Sillamäe has been the first major project in the environmental cooperation agreement between the two states, signed at the start of the summer. Help for eliminating pollution at Sillamäe has also been offered by the Finns. Help from the Finns, however, consists largely of designing air purification equipment for the Baltic thermal power plant, and of taking part in solving the effluent problems of Tallinn.

I also asked the environmental minister to explain what in the world is the Lake of Sillamäe that has lately become the subject of discussion in Estonian media, including television and radio. "There is no lake there," the minister asserted. There is, however, a dangerous repository of waste, the surface area of which is 33 hectares. The repository is in the immediate proximity of the sea, where it was built in 1959. Waste from Uranium ores has been dumped there since 1948. (Tõnis Kaasik said that what was shown as the so-called Lake of Sillamäe on "Candid Camera" was actually footage taken from Kurtina).

"According to management at the Sillamäe plant, the repository holds 4 million tonnes of Uranium ore waste, and 1.5 million tonnes of oil shale ashes. There are 1,200 tonnes of Uranium and 800 tonnes of Thorium."

The minister thinks that the Heltermaa incident was not all that innocent as it was made out to be. Tõnis Kaasik said that Heltermaa's cargo was toxic, indeed (at least in the formal, legal sense). "It was not very pleasant to learn, for example, that at the U.N. environmental conference at Rio de Janeiro, the incident of this ship, and even its name, was

known to environmental ministers from Turkey, Germany, Bulgaria, Romania and several other states. The convention regulating shipments of toxic materials is relatively new, and I can see how Estonia's Marine Shipping, unwittingly, got caught in the gears of international legislation.

In the Heltermaa incident we were obviously dealing with an attempt to pass off a shipment of hazardous materials as part of a regular trade exchange, and doing it with inadequately formulated documentation. The agreements regulating international shipments (like the OECD [no expansion given] directives, which are recognized by both Turkey and Germany) are specific enough to establish the cargo on the basis of existing ship documents alone. Unfortunately, some of the accusations made about the cargo were incorrect (those relating to radioactivity, for example), which amplified the incident unnecessarily, both in the local and the international media."

The incident of the radioactive metal container returned from Sweden is also more than unpleasant. "The Swedes think—and I am inclined to share their opinion—that such radioactive containers have originated from here before, and probably will again."

The environmental minister rejects the line of our customs officials implying that radioactivity of the cargo leaving Tallinn could not be checked because the Russian customs officials took their instruments with them, and we, unfortunately, did not have any. "This equipment is easily available, even in Estonia," the minister pointed out. Had the Customs people checked with the environmental ministry, they would have gotten help from there. Besides, this container was reputedly brought in as contraband and did not even go through customs. "You couldn't very well take a container weighing 22 tonnes and sneak it in under your coat," Tõnis Kaasik said. The container held copper plates with markings on them. The origin of these plates is being investigated now.

Tõnis Kaasik added that the fate of the Paldiski nuclear reactor is still hung up on a political resolution. The only progress made since spring is that members of the government commission now have permits to enter Paldiski. The heating coils of reactors, however, have not yet been removed, which means that the reactors can still be reactivated. "Their reactivation would mean putting off the deadline for dismantling the whole facility for some time. Early this August, Foreign Minister Jaan Manitski contacted Russia in the matter of the Paldiski reactors. No reply has been received, so far."

The high number of scandalous environmental incidents should not drive any officials, whose realm is affected by these incidents, to justify themselves out of indignation. "It would be more sensible to simply do something about it, and to learn from our mistakes," the environmental minister added.

Estonia's Premier Sees Paldiski Nuclear Plant as 'Threat'

LD1611204592 Helsinki Suomen Yleisradio Network
in Finnish 1530 GMT 16 Nov 92

[Text] Estonian Premier Mart Laar believes that the Paldiski nuclear power plant is a threat to the entire Baltic

Sea. The danger of environmental damage is very great because Russian soldiers are deliberately destroying the equipment at the base, Premier Laar told Finnish reporters in Tallinn. According to Laar there are criminal smuggling operations connected with the Paldiski base, which is controlled by Russian soldiers. The Russians have not allowed Estonian or international observer groups to Paldiski. Russia has threatened that the withdrawal of its troops from Estonia does not include the Paldiski base.

Estonian Ministry Warns Against Buying Goods From Russian Military

WS0112131892 Tallinn ETA NEWS RELEASE
in English 1834 GMT 30 Nov 92

[Text] Tallinn, November 30—Estonian Ministry of Environment warns against visiting deserted Russian army bases or buying questionable goods from military personnel. There have been several accidents caused by greed, the Ministry press service announced. Jet fuel bought from the military has caused poisoning in Pärnu County and loose high voltage wires have been discovered in Viimsi.

Objects left behind by the Russian military may be deadly, the Ministry warns. Toxic chemicals, explosives and ammunition cannot be adequately guarded or rendered harmless as yet.

Latvia Outlines Environmental Goals in UNCED Document

93WN0118A Tallinn THE BALTIC INDEPENDENT
in English 16-22 Oct 92 p 6

[Article by Peter Morris]

[Text] The major concern of Latvia and its neighbours on the Baltic Sea is the continual deterioration of the regional environment. In a document submitted to the United Nations at the World Conference on the Environment in Rio de Janeiro, June 1992, the government outlined its plan to participate in both regional and global development of environmental programmes.

The overriding goal of Latvia is to manage a smooth transition to a market economy while reorienting the economy to utilise local resources and decrease reliance on imported resources and raw materials.

This goal can be achieved, the report claims, by instituting a policy of "sustainable development." This strategy will require:

- levying environmental taxes on polluters;
- requiring industry to comply with environmental regulations
- upgrading anti-pollution technology;
- upgrading environmental monitoring stations;
- building modern waste treatment centres;
- instituting ecological education.

The most serious environmental problems in Latvia are concentrated in urban areas and sites where agricultural chemicals are stored. Both these sources have caused

heavy pollution of the Daugava and Lielupe rivers and have had a serious impact on the ecosystem of the Gulf of Riga.

Human health

The average life expectancy for men is the lowest in Europe, and for women in Latvia it is among the lowest. Men in rural areas live an average of 63.1 years.

Infant mortality rates are high and climbing at an alarming rate. In 1985, 11.8 of every 1,000 children died in their first year. In 1990 that figure rose to 13.5. In the city of Ventspils two percent of all children die in their first year.

Among adults, deaths due to cardiovascular diseases continue to increase. During the last ten years incidence of lung cancer has increased by 30 percent.

Natural resources

Latvia has few useful mineral resources, mostly building materials such as dolomite, limestone and clay. These minerals are recovered in pit mines only, destroying enormous areas of land.

In total this type of strip mining has ruined 26,000 hectares (ha), more than half of which (17,000 ha) was caused by turf mining. A full 75 percent of these mining areas have simply been turned into illegal waste dumps.

Energy

Due to Latvia's integration into the Soviet Union, the economy of Latvia is fully dependent on foreign energy resources. Over 90 percent of Latvia's heating fuel, 100 percent of its oil and 50 percent of its electricity needs are met with imports.

The need to expand energy production is obvious. The task is to do so without a significant increase in pollutants. Most citizens strongly oppose the construction of a nuclear plant in Latvia, and building more hydro-electric plants on the Daugava River is both unpopular and impractical.

The most likely option is to expand electricity production at the two Riga thermal plants already in operation, and to build a third, coal-burning plant near the capital. Both these choices are certain to raise the already high level of SO₂ and NO_x emissions.

Agricultural pollution

During the occupation, agricultural land was reduced by a third. The policy of concentrating agricultural production in small areas has resulted in the exhaustion of the soil and heavy environmental contamination in many regions.

Unmonitored pollution from state-run farms and food processing plants has increased the levels of nitrogen and pesticides in the soil and water.

Water pollution

Both water supplies and sewage water treatment centers in Latvia are unsatisfactory by Western standards. Even by

Soviet standards, only 113 million cu m of sewage, about 30 percent of Latvia's annual output, is properly treated.

Pollution due to a lack of sewage treatment is worst in Riga. Until 1991, 97.5 percent of Riga's sewage was discharged untreated into the Daugava River. Even today the central treatment plant can only handle less than half of Riga's sewage.

Because of this situation, swimming is restricted in the Gulf of Riga, where the once popular resort town of Jurmala is located. Dangerously high levels of human fecal bacteria from Riga as well as pharmaceutical wastes from the city of Olaine force authorities to issue warnings each summer to Latvians wishing to bathe in the Baltic Sea.

Air pollution

Air pollution in Latvia is far higher than the European average, but on par with the former Soviet Union. Atmospheric concentrations of ammonia, pyridine, hydrogen chloride and isopropanol are abnormally high near the pharmaceutical producing town of Olaine. Levels of phenol, ammonia and xylene remain high in other regions of the country.

Latvia seeks to implement the same standards concerning air pollution as the other industrialised nations on the Baltic Sea. To achieve these standards authorities wish to comply with the recommendations of the Helsinki Commission (HELCOM) on environmental protection.

The strict factory emission assessments required to meet this goal are so far unheard of in the former Soviet Union. Outdated production technologies, worn-out equipment and unskilled labour make it impossible to update most purification procedures. Latvia must rely heavily on the experience and financial assistance of Western countries in order to set standards for the maximum permissible levels of hazardous discharges.

Education

Ecological education is recognised as a continuing and permanent process. During the last two years, changes have been made in the educational system to improve students' ecological awareness. Pupils will be taught the basic concepts of ecology and environmental conservation, including lessons in biology and geography.

The programmes now in use to educate students about the environment are developed by the University of Latvia Ecological Centre, the Environmental Protection Club, and the Society for Nature and the Protection of Monuments in close co-operation with the Latvian Environmental Protection Committee (EPC).

The greatest obstacles to environmental training are the lack of text books and other instruction aids. Instructors, too, have a poor grasp of environmental issues. International exchange of information, literature and teachers is desired.

Foreign co-operation

Sustainable development as an ultimate environmental goal is only attainable through international co-operation. Latvia's poor economic situation forces it to rely on international assistance in handling its most pressing environmental issues.

Because of this, co-ordination of environmental policies in the Baltic States and the Nordic countries has increased during the past two years. Bilateral agreements have been signed between Latvia and Denmark, Sweden and Finland to exchange information and expertise.

Specifically, money and experts from Denmark have helped to renovate Latvia's previously all-but-non-existent solid and toxic waste disposal plants.

A joint Latvian-Dutch programme is now assessing environmental risks in Ventspils, the second largest port in Latvia. And the Swedish Environmental Research Institute has opened an office in Riga to begin collaborative projects with the EPC.

Policies

The EPC was created on June 20, 1990, with the stated purpose of overseeing, in co-operation with the Supreme Council, a policy on environmental protection and resource allocation.

Since that time, environmental policy in Latvia has been based on a triad of economic incentives to encourage enterprises to reduce pollution, regulatory measures to ensure minimum guidelines are followed, and an aggressive search for technological measures that can improve environmental performance.

Economic incentives have included taxes on polluters since the Law on the Protection of the Environment was passed on August 6, 1991. The drawback to such incentives is that the lack of privatisation has left the overwhelming number of industries under state control. These industries care little about taxation on their profits. Factory managers simply argue that the taxes levied on them for polluting hurt the quality of life for all their workers, and usually gain an exemption from the tax.

Regulatory measures have been equally toothless in Latvia's state-run economy. Most regulatory statutes inherited from the USSR consider the natural environment to be just one component in technological progress. Natural resources, it is argued, belong to the state and therefore no recompensation for its use is needed.

Technological advancements in the field of emissions control are seriously lacking in Latvia, and the present economic downturn leaves little promise of spare resources to improve these technologies. It is estimated that it will require at least five times as much money as is presently available to stabilise the environmental situation. It is hoped that neighbouring Western countries will donate the resources to help diminish the emission of hazardous substances by local industry.

Additionally, practical methods must be found to raise peoples' awareness of environmental issues, so that more pressure to improve the ecological situation will be put on decision makers in government and industry.

Estimates Given for Russian Army's Damage to Latvia's Ventspils Area

OW2711204992 Moscow BALTFAX in English
1834 GMT 27 Nov 92

[Following item transmitted via KYODO]

[Text] Experts of the Latvian Ventspils regional ecological service estimated the environmental damage caused by a Russian Army training regiment stationed in Ventspils as a result of its using a test ground there at almost 957 million rubles.

Most damage was caused by deforestation on the test ground territory. The damage to soil on 500 hectares is estimated at 1.5 million rubles.

This information was provided to BALTFAX by Chairman of the commission on the transfer of the test ground Raimonds Lacis.

Baltic States Warned on Radioactive Contraband

93WN0118B Tallinn THE BALTIC INDEPENDENT
in English 23-29 Oct 92 p 11

[Text] Germany has warned all three Baltic States and other East European nations to tighten controls on radioactive materials, following two recent discoveries of dangerous isotopes smuggled into Germany—some of which are believed to have come from Lithuania's nuclear power plant at Ignalina, writes Andrzej Jeziorski.

One man suffered a fatal dose of radiation while attempting to smuggle radioactive strontium—thought to have come from Ignalina—from Lithuania to western Europe. The man, a German of Polish origin, was a member of a gang of smugglers captured by police in Berlin. He had been poisoned by the radiation while carrying the isotope on his chest, while his three companions all suffered lesions from carrying the highly toxic substances in an ordinary suitcase.

Police say that the gang was planning to sell the isotopes in Switzerland.

In another incident five Poles were arrested after the discovery of containers holding a few grammes of caesium-137 and about 20 grammes of strontium in Frankfurt. One of the containers was in a left luggage locker and the other was in a parked car. Both containers had cyrillic markings.

The German Environment Ministry has warned all three Baltic states, Poland, Belarus and Ukraine to impose tighter customs controls to prevent the illegal transportation of radioactive material. Polish authorities have now set up equipment to detect radioactive substances on the Polish-Lithuanian border.

REGIONAL AFFAIRS

EC Approves Limits on Polluting Trucks Crossing Alps*AU2711161492 Paris AFP in English
1555 GMT 27 Nov 92*

[Text] Brussels, Nov 27 (AFP)—The European Community formally approved an agreement with Austria here Friday which sets a cap on the number of polluting E.C.-registered trucks allowed to cross the Austrian Alps.

The accord, part of a wider deal creating a giant single market comprising 19 countries of the European Community and the European Free Trade Area (EFTA), allows for an initial 1.3 million truck crossings a year.

Under a complicated "ecopoint" system of measuring exhaust pollution, the number of trips allowed will be cut year-by-year over the next 12 years unless the trucks become cleaner.

Italian-registered trucks get the greatest number of initial crossings (510,000), followed by Germany (482,500), the Netherlands (123,500) and Greece (60,500).

The agreement, which was passed by an E.C. ministerial council, provides that the two sides will do their best to promote putting trucks on trains to cross the Alps. The E.C. and Austria are to co-finance a new tunnel through the Brenner Pass.

The council is scheduled to approve a transport accord with Switzerland on Monday.

It provides that Switzerland can keep its ban on trans-Alpine truck traffic for trucks of over 28 tonnes, but allow 15,000 trips each year for perishable goods if there is no rail capacity available.

The Swiss are committed to building two Alpine tunnels.

The twin agreements will come into effect on January 1 if Switzerland ratifies an accord creating an E.C.-EFTA European Economic Space which is due to start on that date.

The EFTA comprises Austria, Switzerland, Sweden, Norway, Finland, Iceland and Liechtenstein. E.C. members are Germany, France, Britain, Italy, Spain, the Netherlands, Belgium, Denmark, Spain, Portugal, Greece and Luxembourg.

AUSTRIA

Chancellor Vranitzky Offers Help in Temelin Power Plant Evaluation*AU1711110692 Vienna DER STANDARD in German
17 Nov 92 p 4*

[Juergen Langenbach report: "Plans for Eastern Europe's Ecological Development"]

[Text] Vienna—At the opening of the "conference on the ecological reconstruction of Central and Eastern Europe" convened by the environmental organization "Global

200" in Vienna, Chancellor Franz Vranitzky renewed his offer to Czech Prime Minister Vaclav Klaus "to help in the evaluation" of the "Temelin" nuclear power plant, which is under construction. Vranitzky's own assessment of nuclear energy—"the potential of danger should make any further discussion unnecessary"—corresponds to that of the congress, which first concentrated on the nuclear power plant problem.

"The point is not only nuclear power, but energy policy and the fact that Western nuclear power plant producers want to determine this policy because they no longer get rid of their products in the West and are looking for new markets," said John Willis from "Greenpeace," in providing a framework. The fact that they still negotiate with the governments behind closed doors is deplored by Lidiya Popova from the CIS, as well as by Honza Boranek from the CSFR, who estimate the energy-saving potential of their countries at 50 percent. According to calculations by Jim Barnes from "Friends of the Earth," "in this way the former Soviet Union could close down 150 of its largest power plants; for lighting alone the power of 40 Chernobyl reactors is required. Five to 10 of them could be saved by using energy-saving lamps."

Martin Kaspar from "Global 200" answered the question of "what Austria can do" more comprehensively than Chancellor Vranitzky: "We should halt net power imports from Ukraine, Poland, and the CSFR and increase help for non-nuclear energy production, the eastern ecological fund, from the current 200 million schillings to 1 billion."

FRANCE

CEA Opens Pilot Nuclear Waste Furnace*93WS0020E Paris AFP SCIENCES in French
24 Sep 92 pp 24-25*

[Unattributed report: "CEA Melts Nuclear Past"]

[Text] Marcoule—The scene per se is nothing special compared with what one might see in any steel plant: molten metal being poured out of a furnace casts a strong light on the surroundings and, several meters away, it heats the glass panes that separate it from the nearby control room so that you can hardly touch them.

This scene would be quite commonplace, except that it takes place at the CEA [Atomic Energy Commission] Marcoule (Gard) facilities, and the steel being processed into ingots comes from the G2 and G3 reactors set into service during the fifties to provide plutonium for France's first nuclear weapons, and which are being dismantled now.

The two reactors, which used the so-called UNGG [natural uranium-graphite-gas] system also produced electricity: prior to their final shutdown, in 1980 and 1984 respectively, they provided 12 billion kWh [kilowatt/hour] between the two of them, each having a power output of 38 MWe [megawatts/e].

On 16 September, about five months after it started operating, on 27 April, the furnace began to "gobble up" the second thousand metric tons of steels from the French nuclear past.

"In 20 years," the CEA fuel cycle manager, Mr. Jean-Yves Barre, sighed, "we have acquired expertise that causes us to believe that dismantling, i.e. the various operations performed when a facility is shutdown for good after nuclear material removal—disassembly, cutting, confinement, waste disposal, etc.—is perfectly manageable. Both with respect to safety and technically, especially considering that we use mostly already existing methods."

While dismantling six research or pilot reactors and eight laboratories or plants, the CEA has developed knowhow which, for the time being, is of merely theoretical interest for nuclear power-plant operators although we already know that it will take on a major industrial dimension during the next century.

EDF [French Power Company], for its part, is setting aside 15 percent of each reactor construction cost, plus the cost of inflation over 30 years; 16 billion French francs [Fr] were thus provisioned by the end of 1989. The full dismantling of a power plant is estimated to cost about Fr200 million.

When a nuclear facility is no longer operated, three degrees of dismantling can be considered: mere shutdown and monitoring after removal of the most highly radioactive materials (level 1); partial and conditional release of the site and bringing it to level 2 (radioactive containment area reduced to a minimum, reinforced protection against radiation). Finally, total and unconditional release of the site after removal of anything still more radioactive than the maximum permissible doses for the public, and eventual reuse of the site, without any restriction (level 3).

To go from level 1 to level 2, all that is needed sometimes is waiting. "This is usually the option chosen by EDF," Mr. Barre noted: within 50 years, the radioactivity of short-lived radioelements will decrease by a factor of 1,000. This solution obviously is not suitable for facilities containing long-lived elements with half-lives measured in millions of years. In that case, Mr. Barre explained, the strategy imposes thorough cleaning from the start, and also whenever increased risks of corrosion and radioactive leaks are present.

No matter what solution is adopted, however, one problem is unavoidable: waste and the volume of waste. For this, the Marcoule furnace shows the way. Thanks to this pilot facility, only 5 percent of the steel initially contaminated will have to be stored by the National Agency for Radioactive Waste Management [ANDRA]. The rest will just be stored; eventually it may be recycled in the nuclear industry. Or even in the industry at large, if the psychological barriers that preclude any serious consideration or such reuse could be overcome, an expert pointed out.

Plan To Recycle Automobiles Discussed

92WS0838C Paris INDUSTRIES ET TECHNIQUES
in French 11 Sep 92 pp 57-62

[Article by Yves Ciantar: "Year One in Automobile Recycling: New Revolution in Design of Vehicles"]

[Text] PSA [Peugeot Corporation] and Renault are installing used-vehicle recycling units on an industrial-scale. In a nutshell:

- Currently, 75 percent of the weight of cars is being recovered. Raising this figure to 95 or 100 percent is another technical culture.
- Two approaches to the design of recyclable vehicles: Reduce the number of plastic materials; increase the use of clips for the assembly of components.
- A crushing line costs around 10 million francs [Fr]

It is 1998, Duisberg, Germany. Karl Freundt inserts and turns the ignition key for the last time. The Model 1992 Volkswagen Golf sputters a bit—the ignition system has seen a great deal of service—but it starts up. With nostalgic hands, Karl Freundt drives his faithful old friend to his dealer. He parks it and drives away at the wheel of the new car he has just purchased. The next morning, a truck bearing the insignia "Volkswagen Recycling" loads the car aboard and takes it to the center at Leer, one of the used-car recycling plants that Volkswagen owns in Germany. There, a mechanical monster weighing all of 100 tons, a crusher, goes into action. It chops up the car into chunks of debris just a few centimeters in size. As the debris comes off the line, ultramodern sorting machines snatch up the pieces and sort them according to categories: morsels of rubber, chunks of crushed metal, bits of glass, shreds of colored plastic. Bought up by subcontractors, the fragments of plastic will be transformed into bumpers and fenders, the lead will be reused in new batteries, the recast metal will be fed to the steelmakers' rolling mills, to, perhaps one day, become the frame of Karl Freundt's next car.

Futuristic? The scenario may be to some extent. But Volkswagen will already be taking back its '92 vintage Golf through its dealers, at no charge, to be partially recycled. And while the dates and the number of recycling centers are imagined, the dealer-crusher-recycler chain described has every chance of being the one that will prevail by the end of this century. The very concrete Topfler Decree on automobile scrap—named after the German minister of environment who is turning everything topsy turvy—is to go into effect in 1993 in Germany. The four main points of the decree are: Automobile manufacturers must retrieve, at their own expense, at their customers' premises, the vehicles they have manufactured, when these have reached the end of their useful life; the manufacturers themselves must organize and carry out the pick-up; recycling the scrap from automobiles will take precedence over their disposal as waste; and the recycled materials must all be reused within the automobile industry. This decree's advanced thinking in terms of recycling helps explain why the foregoing scenario takes place in Germany. France,

however, is not exactly bringing up the rear of this trend, even if, for the moment, no legislation looms on the horizon.

France's automobile recycling history began in 1990. "We started from practically nothing," says Daniel Froelich, one of the Regie Renault's mainsprings in this field. At that time, we were already recovering 75 percent of the weight of an automobile; that is, almost all the metal. But to aim for 95 or 100 percent, we had to acquire a technical culture that we did not have. We recovered the manufacturing scrap in our plants, of course, but we had no knowledge of dismantling methods or of recycling technologies." This is why, in 1990, all the manufacturers were willing to pay for the viewing. PSA, together with the French Scrap-Iron Company [CFF], installed a pilot vehicle-dismantling plant at Saint-Pierre-de-Chandieu, near Lyon. Renault did the same at Flins. Their experimental work involved small volumes of some 10 vehicles a day.

"At Saint-Pierre-de-Chandieu," says CFF's technical manager, Jean-Marie Del Vecchio, "PSA pursued two objectives. It studied the recycling of cars manufactured prior to 1990, which had not been designed to be recycled. And PSA's engineers planned to draw lessons from the gathering of these data that they could use in the future manufacturing of more-easily recyclable cars."

Today, in 1992, the pilot European installations are all drawing their conclusions. They are identical. First of all, the major automobile recycling problem stems from the use of plastics. Secondly, the economic viability of used-materials recycling and reutilization chains is far from proven. "A car contains more or less 10 different kinds of plastics," says PSA's Corinne Desnost. "Polymethyl methacrylate (PMMA) is used in the optical components of the headlights and in the car's counters and meters; polyvinyl chloride (PVC) is used in the car's batteries. Polyamide (PA) is used for spaghetti. Polypropylene (PP) is the material used for bumpers. And certain parts of the body are made of SMC [Sheet Molding Compound] composites." All automobile parts include several types of plastics that are very difficult to separate from each other. Moreover, even if one succeeds in isolating them, they must still be recycled, and the methods are very difficult to master. SMC composites, for example, cannot be recast. And polypropylene loses its mechanical properties.

What is to be done? The manufacturers propose two solutions. "For cars that have not been designed with future recycling in mind," says Daniel Froelich, "two approaches can be implemented: Total recycling (one recycled part gives a new part) for the bumpers, the fuel tank, the seats, instrument panel, and hubcaps; and the rest, after crushing, to be processed for use in the production of energy." Only one pilot plant exists for processing automobile scrap for use in the production of energy. It is located at Saint-Pierre-de-Chandieu, where CFF has created a subsidiary jointly with France's number three cement manufacturer, Vicat, to burn RBA [automobile-crushing residues] in a cement plant. During dismantling, material to be sent to the crusher must be separated out from plastic materials, which are recycled integrally. This

is a very delicate operation, as has been indicated by the sole experiments to date, namely, those being carried out by Renault and PSA on the recycling of bumpers. The two manufacturers plan to install a full-fledged recycling production line by the end of this year. Not without a price tag. "This has cost us all of Fr10 million," says Daniel Froelich. "The plan includes a crusher truck that will make the rounds of the dealers and pick up the bumpers. The bumper is chopped to pieces and taken over by CPP, a company specializing in recycling. CPP resells the chopped-up bumpers to a production unit owned jointly by Renault, Atochem, and Plastic Omnium. This is a highly complex unit that makes use of mechanical and chemical methods. At the output end of the line, granules are again obtained that will be reintegrated into new bumpers at the level of several tens of percent."

An experiment of this kind requires a heavy investment, collaboration among four industrial enterprises, and a high-technology-intensive R&D effort to debug the recycling production line. To say nothing of having to sensitize the dealers, who become scrap collectors. Economically speaking, all told, the operation rests on a razor's edge. Edouard Lanfranchini, head of recycling at PSA, says: "The technical problems will be resolved within one or two years at the latest. But gathering the bumpers, then tomorrow the fuel tanks, is going to cost a pretty penny. A collection system will have to be put in place, funds will have to be invested in additional production units, and the dealers will have to be trained. Under these conditions, we have set a very clear limit for ourselves." Installing a "total recycling" chain will require that the recycled materials issuing from the end of the line have the same properties, the same quality, and the same price as new materials.

Tomorrow, it will undoubtedly be easier to recycle plastics. At Leer (Volkswagen), Saint-Pierre-de-Chandieu, and Flins, lessons have also been drawn that will improve the design of vehicles. "The number of plastic materials in automobiles will unquestionably have to be reduced," Daniel Froelich predicts, "according primacy to new forms of polypropylene that are easier to process. Access to mounted components will also have to be improved to facilitate the dismantling process." The use of screws and bolts as the means of assembling and mounting components will have to be abandoned to the maximum possible, and replaced, for example, by methods based on clips. And to facilitate identification of the materials, all composites will have to have engraved on them the nature of the materials comprising them. The federation of French equipment manufacturers, FIEV, is currently working on the problem. Renault and PSA have started introducing such markings on the composites used in certain vehicles, like the new model of the Espace and the 106. International standardization under the aegis of the ISO [International Standards Organization] is being instituted at the European level. Regulations are to be issued in this regard.

A full-fledged revolution can be expected to materialize in the industry's design and research divisions. Beginning in September, Renault will distribute to all its

design bureaus a set of strongly recommended specifications. Its intent is to sensitize its specialists to the use of recycled materials in their future projects, and it will also contain recommendations with respect to assembly and mounting. And very soon, Renault's design engineers will be able to consult a data bank common to all European automobile manufacturers.

[Box p 61]

French Cooperation

After the launching of the pilot sites in 1990, the automobile manufacturers are now building full-fledged recycling plants. In July 1992, the two principal French manufacturers, Renault and PSA, announced that they had shifted into high gear and were installing a jointly-owned industrial-scale automobile-recycling plant at Athis-Mons. The example comes from Germany, where the FRG's principal automobile manufacturers have already teamed up to study the recycling units of tomorrow. In France, the Athis unit will be capable of processing 200 vehicles a day beginning in September 1992. The venture rests on the expertise of CFF, privileged partner of the two French manufacturers.

PSA To Market Two Electric Cars

93WS0040D Paris AFP SCIENCES in French
1 Oct 92 pp 41, 42

[Unattributed report: "Electric Cars: France Takes the Lead"]

[Text] Florence—The 11th international symposium on electric cars was held in Florence from 27-30 September, and highlighted France's lead over the chief industrialized countries. France's front position is reflected in its research vehicles and its political will to quickly accustom people to using electric cars.

Since Matra-Renault's electric prototype Zoom, which was presented in Paris in early September, stayed home, top billing among the 40 vehicles exhibited went to Citroen's Citela prototype and Peugeot's small 106 electric car. The 106 electric attracted special interest after PSA Peugeot Citroen confirmed on 28 September that it planned to market it in 1995, together with a Citroen AX electric car. The two cars will not cost any more than equivalent thermal-engine vehicles, and are expected to attract customers of passenger cars.

The PSA cars will have four real seats, autonomy of 60 to 160 km (depending on how they are used), and acceleration of 0 to 50 km an hour in 9 seconds. That means they will be able to function in city traffic. Equipped with batteries that can be recharged in eight hours using any 16-ampere electrical outlet, the vehicles will be able to travel 40 km after a "quick" recharge of 20 minutes in a service station.

Given the high cost of nickel-cadmium batteries, Jean-Yves Helmer says PSA Peugeot Citroen has opted to rent them through a still-uncreated company that will be responsible for their maintenance and recycling. Rental

fees will be fairly high, but the longevity (about 300,000 km) and low recharge cost (about 8 French francs [Fr] per 100 kilometers) will enable drivers to break even.

PSA Peugeot Citroen hopes to sell around 3,000 electric cars a year in 1995, 10,000 in 1997, and 50,000 just after the year 2000. No other manufacturer that took part in the Florence symposium has so far done as much to promote electric cars. PSA Peugeot Citroen invests \$40 billion a year in the effort.

Moreover, French manufacturers are the only ones to have extracted active political support from their government. On 28 July, a skeleton agreement on building the infrastructure for recharge and maintenance services was signed between the French Ministries of Industry and the Environment, Electricity of France, PSA Peugeot Citroen, and Renault. The agreement stipulates that 10 pilot cities will be equipped with battery-recharge terminals between now and 1995. Thirty-five cities have already applied, and the final selection will be made 23 October.

Three cities in western and central-western France have already signed agreements with Renault and PSA Peugeot Citroen. Paris, Marseille, Lyon, and Strasbourg will certainly be equipped. Symposium participants say France's lead should stimulate the industry in Europe. In Scandinavia, where there is a good electric-socket infrastructure, a deliberate policy to promote electric cars could be implemented quickly. In Germany, Leipzig is in the midst of preliminary talks with PSA Peugeot Citroen.

Outside Europe, the Japanese government would like to see 200,000 small commercial electric cars in the archipelago around the year 2000. California has decided that two percent of the state's registered vehicles must be "100-percent non-polluting" by 1998. That percentage will be raised to five in 2000 and 10 in 2003, in a market that is estimated at about 200,000 vehicles a year.

GERMANY

CFC Substitutes Used in Environmentally Friendly Refrigerator

93WS0004B Duesseldorf VDI NACHRICHTEN
in German 4 Sep 92 p 35

[Article by Rainer Antkowiak: "Eco-Refrigerator Creates a Stir"]

[Text] The refrigerator from the company dkk Scharfenstein, in Scharfenstein near Chemnitz, Saxony, is not a high-tech product—and that is precisely why it is interesting. The unit makes do without chlorofluorocarbons (CFCs), which destroy the ozone layer, and without fluorocarbons (FCs), which cause the greenhouse effect. The cooling agent, developed at the Dortmund Institute of Health, is a mixture of hydrocarbons with the principal ingredients propane and butane—in quantities which are no longer a lighter fluid. The polystyrene (EPS) insulating materials are expanded with pentane.

According to information from the dkk technicians, the unit will continue to be improved until its delivery next spring.

The EPS thermal insulation is not yet optimal, the ideal oil has not yet been found for the cooling agent, and the dimensions of the evaporator must be altered. Even so, the dkk product is held to be a serious alternative to refrigerators using the toxicologically controversial fluorocarbon R 143a, which is favored by the international chemical industry. "Good marketing opportunities," admitted Federal Environment Ministry Klaus Toepfer.

Meanwhile, the discussion about the eco-fridge has had an effect on the Trust Agency in Berlin. Instead—as originally planned—of closing the Saxon enterprise as quickly as possible, the refrigerator-makers are now being given 5 million German marks [DM] in order to convert the entire product range to environmentally compatible hydrocarbon mixtures.

Rarely has a household appliance attracted as much attention as the eco-refrigerator from the dkk company in Saxony. Although in many ways the unit must still be technically improved, it is considered a serious alternative to products using the cooling agent R 134a, favored by the chemical industry.

The eco-fridge from Scharfenstein in Saxony is more than just a piece of completely chlorine- and fluorine-free household refrigeration furniture. It is a sales hit before a production-ready model has yet to come off the assembly line at the dkk company. Not until April of next year, at a cost of less than DM700, will the company deliver something which tens of thousands of people have ordered in the past weeks during an advertising campaign by the environmental protection organization Greenpeace: a cooling device with 127 liters of usable space, 0.7 kW/24 h energy consumption and a guarantee of no ozone-destroying chlorofluorocarbons (CFCs). "The appliance from Scharfenstein has good marketing opportunities," Federal Environment Minister Klaus Toepfer even said recently. The Neckermann mail order company will be offering it.

The unit is not exactly news for the manufacturer dkk. Instead of using the CFC R 12, as before, a mixture of propane, butane and cyclopropane, known as a "Dortmund mixture," transports the heat from the interior of the refrigerator. The appliance's insulation consists of expanded polystyrene (EPS), and the inflating agent for the foam is propane.

In contrast to chemical conglomerates such as Hoechst, ICI and DuPont, which tout the fluorocarbon R 134a as a replacement for R 12, Harry Rossin is concentrating on chlorine- and fluorine-free coolants. The head of the Dortmund Institute of Health and the inventor of the coolant mixture from three hydrocarbons does not think much of R 134a. "This substance breaks down in the atmosphere as trifluoroacetic acid," the bacteriologist says. "This in turn is degraded by anaerobic bacteria in the ground into monofluoroacetic acid." And it has been known for a long time that one drop in 10 liters of water is sufficient to kill a horse, if you let it drink the water.

Tony Kaye, sales director for German ICI in Frankfurt, has an entirely different view. According to Kaye, R 134a

has been tested by international chemical companies in environmentally compatible studies by the Alternative Fluorocarbons Environmental Study (AFEAS). These studies have clearly showed, he said, that there are no problems whatever with the R 134 breakdown products. Says Kaye: "The amount of breakdown products is so small that it is completely irrelevant."

Small, at least, is the amount of coolant put into dkk's refrigerator—not even as much as in an average gas lighter. Right now, according to information by the company, one wants to come down from the present 30 ml total volume to about 20 ml. This way it would be physically difficult for an explosive mixture to form during a leak in the coolant cycle in the interior of the refrigerator.

Experts disagree on the energy consumption of the eco-appliance. "The allegedly higher energy consumption with coolant from hydrocarbons is a stubbornly remaining rumor," in the opinion of Holger Brackemann, a chemist with the Berlin Environmental Office. A series of studies have proven that on the precondition that the technology used is optimized, higher energy consumption should not be anticipated.

For dkk's technicians, optimization means working on the details, above all. Thus, the thermal insulation is not yet perfect. During production heat bridges occasionally develop from gaps in the foam. The refrigerator makers in Saxony have been foaming EPS "around the corner" for years. The foam material is injected between two pre-formed parts and serves simultaneously as thermal insulation and a structural component. The specific insulating effect of the EPS lies below that of foam propelled by CFC. For this reason people at dkk are thinking about possibly reinforcing the insulation at the expense of the interior capacity.

Also on the list of technical improvements is the coolant. The final ratio of the principal components propane to butane has not been found; further, it has not yet been determined whether other hydrocarbons could also be used as coolant. Other alkanes and propyls are being discussed within the company.

Not lastly, it turns out that the "Dortmund mixture" and the moderately viscous mineral oils used—one is still looking for the ideal oil—do not sufficiently dampen the noise made by the compressor. The small amount of coolant is responsible for the fact that another evaporator must be developed.

"You are dealing with an appliance," an expert with inside information from Scharfenstein summarizes, "which is still worth improving on a large number of points." Its energy consumption is only in the medium range; appliances already exist today which need just 0.3 kWh/24 h of energy. In spite of everything, the technical improvements must be implemented before delivery begins next spring.

Meanwhile, the large amount of public attention devoted to the Saxon refrigerator has also had an effect on the Trust Agency in Berlin. Originally the Trust Agency had planned to close dkk down. Instead, although the dkk team is being

reduced from 1,800 to not quite 450 employees, the company is being given DM5 million to convert the company's entire product range to environmentally compatible hydrocarbon mixtures. This guarantees the survival of the enterprise in a receiving company until the end of 1993.

Alternative Solar Cell Materials Studied

93MI0062A Bonn *DIE WELT* in German 10 Oct 92 p 9

[Article by Wolfgang Asche: Solar Electricity From Pyrite—Alternative Solar Cell Materials Will Make Better Use of Light"]

[Text] Conversion of sunlight into electricity is becoming ever more widespread: For instance, the Italian electricity company Enel plans to commission a 3-megawatt photovoltaic power station—one of the largest in Europe—near Naples.

Silicon, from which such solar cells are made, is far from being the ideal material, however. "Silicon's light absorption is pathetic," complains Dr. Wolfgang Kautek of the [German] Federal Materials Research and Testing Agency [BAM] in Berlin.

Kautek is therefore working on alternative solar cell materials that will be able to convert light into electricity with greater efficiency. The "thin film solar cells" thus produced are only a few thousandths of a millimeter thick—around 100 times thinner than silicon cells. Furthermore, they can be inexpensively precipitated onto suitable substrates, thus obviating the need for costly crystal growth processes or the time-consuming task of slicing the crystals into thin wafers.

The BAM's research focuses on what are known as compound semiconductors, which are composed of various elements, such as copper indium selenide (CuInSe_2) or iron sulphide (pyrite, FeS_2). The BAM plans to work with the Fraunhofer Institute of Materials Physics and Coating Technology in Dresden to produce ultrathin solar cells using these silicon substitutes.

CuInSe_2 , which is already being produced commercially by companies such as Siemens Solar Industries in California, is currently the most promising of these materials. Stuttgart University's Institute of Physical Electronics (IPE) recently claimed that "the 14.8-percent efficiency of our CuInSe_2 thin-layer solar cell exceeds all values published to date."

Monocrystal silicon, however, can now convert up to 16 percent of incident light radiation into electricity and considerable further research will be needed before silicon faces a serious challenge. Dr. H.W. Schock of the IPE nevertheless takes an optimistic view: "In the light of the parameters achieved with our cell configuration, we expect further increases in efficiency."

Bavarian Trade Ministry Funds Thermoelectric Converter

93MI0096A Bonn *TECHNOLOGIE-NACHRICHTEN MANAGEMENT-INFORMATIONEN* in German 12 Oct 92 p 17

[Text] A newly developed thermoelectric converter can generate power and heat from nearly all fuels. TEK, the abbreviation given to the heat engine operating on the Stirling engine principle, runs on gas, oil, methanol, hydrogen, and—if gasification units are fitted—with lignite, hard coal, organic waste, and even sewage sludge.

For many decades, work has been under way worldwide on the development of an efficient Stirling engine. With TEK, the breakthrough now seems to have been achieved in overcoming the major sealing problems posed by the separation of combustion and engine and developing a marketable solution that can also be used in large-scale systems.

TEK meets the stringent exhaust fume reduction requirements with which modern heating systems must comply. TEK causes little noise, requires little maintenance, and has a long service life. Oil changes are not required, so the problem of disposing of sump oil does not arise. As a result of its highly sophisticated engineering, TEK achieves about 90 percent overall efficiency. This very high energy yield makes for lower fuel consumption and, consequently, reduces exhaust emissions.

The operating principle is as follows: With a conventional combustion engine (diesel engine, Otto engine) in which the fuel-air mixture ignites as in an explosion after each compression, high flame temperatures are reached, thus giving rise to a high level of nitrogen oxide emissions; several thousand such ignition operations take place every minute. A Stirling engine, on the other hand, combines the advantages of a heating boiler (uniform combustion with low flame temperatures and hence low nitrogen oxide values) with those of a piston engine in order to produce a rotary motion.

The primary object of the development, which was funded by the Bavarian Trade Ministry, is a combined heat and power generator that presents technical advantages over conventional block-type thermal power stations involving combustion engines and achieves much better exhaust fume values.

Bavarian Trade Minister Lang has praised TEK's wide-ranging application potential. For example, the converter can be used as a stationary combined heat and power system supplying power and heat to factories and apartment and office blocks, as a stationary or mobile engine, as an energy converter in heat storage systems, or as a solar power generator. TEK is of modular design and can be extended to form larger units.

The machine was developed by Magnet Motor GmbH and subsequently by its sister company, Heidelberg Motor GmbH in Starnberg near Munich.

The Bavarian Trade Ministry granted a 50-percent subsidy under the "Bavarian Rational Power Generation and Consumption Program" for the project, which cost about 4 million German marks.

In the course of the five-year project, the Starnberg company also developed a thermo-hydraulic converter (THK) to prototype stage. In the THK, a gas-oil reciprocating pump replaces the working cylinder of a Stirling engine. The simple design principle has already proved viable in practice. Both projects received scientific support from Prof. F.X. Eder, who has already obtained numerous patents for his inventions, both in Germany and abroad.

Electric Vehicles To Undergo Field Trials on Ruegen Island

93MI0028A Bonn DIE WELT in German 5 Oct 92 p 12

[Article by Norbert Lossau: "High Tech Put to the Routine Operation Test: Unique Field Trials With Electric Cars on Ruegen Island—Government Puts 22 Million Into Project"]

[Text] In Binz, on the island of Ruegen, last Friday Federal Research Minister Heinz Riesenhuber fired the starting pistol for a four-year field trial. A total of 60 electric vehicles will be put to the practical test on this, the largest German island. The suitability of the electrically-powered vehicles for everyday use, their power consumption, safety in traffic, and service life, will be determined under real conditions. The users will include local authorities, charitable institutions, bus companies, and the German postal service. The project will cost around 40 million German marks [DM], including a DM22-million Federal Research Ministry grant.

The electric vehicles comprise 37 passenger and 23 vans and buses supplied by BMW, Mercedes-Benz, Opel, and Volkswagen, which are scheduled for gradual entry into service on Ruegen from now on. They are all series-production models that have been fitted with electric engines and batteries. One of the main purposes of the field trial is to investigate the efficiency of various types of battery and accumulator. Nickel cadmium batteries will be used in 23 vehicles, sodium sulfur batteries in 22, sodium nickel chloride cells in 13, and lead gel batteries in two.

All first-generation electric vehicles were equipped with lead accumulators, but they are not ideal for operating electric cars as they are much too heavy. Only with the development of high-powered batteries, like those now in use in the vehicles on Ruegen, does running electric cars become an economic proposition. Given the same storage capacity, a sodium sulfur battery, for example, is around four times lighter than an equivalent lead accumulator. Even now, cars equipped with a modern, high-performance battery, can achieve an autonomy of more than 200 km before needing mains recharging. They consume approximately 15 to 20 kW-hours per 100 km covered, equivalent to the amount of energy contained in two liters of gasoline. The vehicles taking part in the field trial on Ruegen can be recharged at public "electricity filling stations." One of the charging stations will obtain

part of its electricity from solar cells, which convert sunlight directly into electrical energy.

This large-scale trial will be accompanied by an Energy and Environmental Research Institute study that will compare electric cars with vehicles running on gasoline and diesel from an ecological point of view. As well as day-to-day running, it will also cover the energy provision, vehicle manufacturing, and disposal aspects.

Toepfer Plans Plutonium Transport to Scotland

AU1611162392 Hamburg DER SPIEGEL in German 16 Nov 92 pp 157-158

[Unattributed report: "Not Even as a Gift"]

[Text] Environment Minister Toepfer was not pleased about the television and newspaper reports last week. He saw policemen dragging 400 environmental activists from a crossing and read about 2,000 policemen loading 1.5 tonnes of highly toxic plutonium dioxide onto the Japanese freighter "Akatsuki Maru" in Cherbourg, and about warships accompanying the freighter.

The spectacle made the Bonn environment minister doubt the wisdom of his plans for a short while. Toepfer, too, has transportation problems. Without causing public attention, the minister would like to transport 1.2 tonnes of radioactive nuclear material from the plutonium bunker in Hanau to Dounreay in Scotland in the next few weeks.

Toepfer has chosen a risky transportation mode. He plans to send seven plane-loads of nuclear material to Scotland. The pictures of the military presence and the Greenpeace activities in Cherbourg caused the Bonn minister to fear that he is not likely to get rid of the poison as elegantly as he had hoped. Yet the nuclear material must disappear, and quickly at that.

The transportation of plutonium aboard the "Akatsuki Maru" from France to Japan and Toepfer's transportation plans have once more made clear to the world the madness of the nuclear industry. These two dangerous and ghastly shipments are the result of a policy that did not take into consideration the end at the outset. Final disposal sites for nuclear waste do not exist. Even the nuclear industry does not know how the stuff can be stored safely over millennia. For this reason, the radioactive waste must be transported at great risk by sea, by air, by land and by rail from temporary storage site to temporary storage site.

Toepfer's problem with the plutonium in Hanau is particularly bizarre. The nuclear waste—nearly the same quantity as the one loaded in Cherbourg—is brand new but still worthless. It consists of 123 unused fuel elements.

The unwanted commodity was ordered many years ago by the Fast Breeder Nuclear Power Plant Society (SBK), a subsidiary of the Rhineland-Westphalian Electricity Company (RWE) and some other electricity firms. The fuel rods were manufactured by Siemens in Hanau and were to be used for the fast breeder in Kalkar.

The breeder reactor, which cost about 10 billion German marks [DM] and which is one of the largest investment disasters in Germany's economic history, has never been completed, and the dangerous plutonium fuel has never been used. Yet it has had to be disposed of somehow.

At the Hanau plutonium bunker of the Siemens company, the government has rented part of a store for radioactive fuels, which is separated from the remaining storeroom just by a yellow adhesive tape on the floor. There the SBK was allowed to store the superfluous breeder fuel temporarily, at a rent of DM250,000 per month.

The breeder elements have been lying there for years. But now Siemens wants to get rid of them. They urgently need the space because otherwise Hesse's Environment Minister Joschka Fischer will not be ready to allow the resumption of the production of fuel elements for light water reactors.

In addition to the rent, Siemens has threatened to sue SBK for damages involving million of German marks. The company in charge of liquidating the breeder immediately turned to the Bonn environment minister and demanded the reimbursement of costs.

Toepfer must now decide on what conditions a clearance of the storage site is possible. Above all, he must decide where the radioactive material is to be taken. In Germany there is no other nuclear disposal site where plutonium can be stored.

The company looked around abroad and discovered Dounreay in Scotland. A prototype fast reactor (PFR) is operating there. The RWE managers offered the fuel elements to their British colleagues, who showed some interest. The SBK quickly bought an old building in Dounreay and converted it into a plutonium storehouse.

In the meantime, however, the new storehouse is no longer empty. Unnoticed by the public, 80 fuel rods from Dessel in Belgium were transported to Dounreay by rail and sea.

Toepfer wants to have the Hanau fuel rods shipped to Dounreay as quickly as possible. When weighing the risks of moving the plutonium by land and sea against those of seven air cargo shipments, Toepfer selected air. Even Lothar Hahn, nuclear expert of the ecological institute in Darmstadt, admitted: "The decision is not easy." According to the Society for Reactor Safety, the probability of an accident or the likelihood of a terrorist attack are greater by land and sea, but the probability and the extent of contamination of the environment and of people are smaller.

Transportation by aircraft is generally safer, but a crash would cause a disaster. The fuel rods are protected by steel containers. They could withstand an impact from a height of nine meters if they hit a rigid obstacle, or 30 minutes of 800 degrees of heat. During an airplane crash, however, the containers would be damaged in many cases.

Since kerosene usually burns in crashes, the plutonium would probably dissolve into small particles that could be inhaled. The highly virulent poison would threaten all live within a large radius. For Toepfer, however, transportation

by air offers a particular advantage: The nuclear material intended for civilian use might leave the country unnoticed aboard British military aircraft—because soldiers are subject to professional discretion.

When transporting the nuclear material by rail or trucks, Toepfer might face protest action. Members of the International Transport Workers Federation have close links with Greenpeace. They watch out for unusual nuclear shipments.

There is no doubt that the Hanau fuel rods will be transported to Scotland. The hopes of the SBK officials, however, that they might be able to sell the unused commodity for a few pounds in Dounreay, have been dashed. The British government has decided to close down its test fast breeders. Thus, there is no demand for breeder fuel elements in Great Britain either.

However, SBK head Werner Koop still considers storage in Dounreay advantageous. At the research center, the fuel elements can be modified in such a way that they are suitable for any other breeder reactor.

The German plutonium owners first planned to send the nuclear material to the Fast Flux Test Facility (FFTF) in Hanford in the United States. Yet the FFTF does not operate breeders either at present, and is unlikely to do so in the future. Even in France the breeders "Phoenix" and "Superphoenix" have been shut down or are not operating at full capacity.

The future of the breeder technology is bleak. Only the Japanese are still constructing a plutonium reactor. The SBK have tried to strike a deal with them, but without success so far.

SBK chief Koop would even give away the fuel elements for free, but he cannot find anybody who wants them. Everybody in this line of business knows that the SBK wants to get rid of the hot stuff urgently. "They know exactly in what a precarious situation we are. This will cost us quite a lot of money," Koop stressed.

Things will become really expensive if the SBK fails to get rid of the plutonium. In that case it will have to have the fuel elements reprocessed in the French reprocessing plant of La Hague to make them suitable for ultimate storage. This would involve great expenditure and millions of German marks. However, the SBK does not have enough money.

The way out is clear: The SBK will file a bankruptcy petition. As stipulated in a risk participation agreement with the Research Ministry, the owners—the electricity companies involved—are exempted from the obligation to make an additional contribution.

Thus, the state is the ultimate guarantor: It is obliged to "avert any danger" and is thus responsible for the safe storage of the plutonium.

Experts Note 'Insoluble' Problems in Military Conversion*AU1911181792 Hamburg DIE WELT in German
19 Nov 92 p 2*

[Report by Nina Gersenberg: "Problems in Eastern Germany With Old Burdens"]

[Text] Berlin—The former Soviet Forces will leave behind some 240,000 ha of land when they will have concluded their withdrawal from eastern Germany—2.5 percent of the area of the new laender. In addition, they will leave behind 270,000 tonnes of ammunition and enormous amounts of arms and equipment, which the Federal Defense Ministry will have to destroy and dispose of.

Until the collapse of the former GDR regime in 1989, approximately 100,000 people were employed in the production of military technology and supply in eastern Germany. What will become of the contaminated soils and waters and the regions that concentrated on the armament industry?

The answers have to be sought in the catchword of conversion, which means the transformation of potentials for military use to civilian potentials. Brandenburg, where 48 percent of the land of the Western Groun is located, is the only land to have appointed a conversion commissioner, Helmut Domke.

"The prospects are gloomy," Domke said. So far only one of the former 15 major armament enterprises of Brandenburg—the former Pinnow Maintenance Plant VEB—has managed to secure its survival. The situation is similarly difficult in the case of the 330 pieces of property that have already been cleared, 90 percent of which are still looking for a civilian user.

While, a satellite system, for example, which served the connection with Moscow, has already been conversed, the situation regarding the 32 airports of Brandenburg is hopeless. Domke: "In view of this density civilian use is conceivable only for a few airports." Representatives of the other four new laender confirm similar experiences.

In view of economic scientist Klaus Engelhardt, expert for conversion in eastern Germany at the Berlin Structural Development and Conversion Group, "the federal government has not yet understood how big the problems are and what chances this situation offers when it can be overcome."

One of the most important issues is headlined "personnel conversion." "Those communities that have been mainly characterized by military facilities over decades are facing insoluble problems regarding employment," Engelhardt emphasized.

The civilian restructuring of former armament enterprises has developed only according to the fortuity of the market. Neither existing production means nor qualified personnel are currently included in the restructuring schemes. Of the former 14,000 employees in the sphere of national industrial research only 3,000 still have jobs. Engelhardt: "What we lack is an overall concept."

Toepfer Claims 'Nine or Ten' Seizures of Nuclear Material*AU2411071492 Mainz ZDF Television Network
in German 1810 GMT 22 Nov 92*

[Interview with Environment Minister Klaus Toepfer by Peter Ellgaard in the studio in Mainz on 22 November—recorded]

[Text] [Ellgaard] *The countries of the former Soviet Union are playing down the problem of the smuggling of nuclear material. There have been reports that somebody wanted to sell a nuclear warhead in the FRG. Can you confirm this?*

[Toepfer] These rumors have fortunately not been confirmed. It is true that such reports have time and again been picked up by the media but, fortunately, they have not been confirmed. However, this in no way means that we do not take such stories very seriously. This year there has been a significant increase in seizures of fissile material. We have already registered nine or ten such cases. There has been nothing from the military sphere, but we have to watch that problem very closely too.

[Ellgaard] *What can the Federal Government do to stop the smuggling of nuclear material. Delivering sermons and appeals to the people is probably not enough.*

[Toepfer] That is absolutely true. We are concentrating on three points. First, making nuclear material secure in the countries of origin. The problem of nuclear mercenaries was pointed out at a very early stage. The response must be to finance an institute in Moscow where those experts can get jobs and use their know-how for peaceful purposes.

[Ellgaard] *Has this been supported by politicians in Moscow?*

[Toepfer] Yes, there has been a lot of support, not only in Moscow, but also from our partners in the West.

Second, we must register and—if possible—seize loose fissile material. This means that we want to do everything we can to implement the nonproliferation treaty among the states that do not have any nuclear arms. In the West this is being done. We are a signatory to the Nuclear Nonproliferation Treaty. This is a very important issue that permits us to guarantee and to carry out international monitoring of the physical protection of this fissile material. Another level is that of border checks. Better and more intensive cooperation between border officials and our experts is desirable.

Third, actions within the federal laender and cooperation with the federal authorities once such material appears or rumors about the existence of such material start spreading, so that efficient action can be taken.

[Ellgaard] *If all that fails, has it also been considered to exert economic pressure on the former Soviet Union?*

[Toepfer] We are greatly worried about many issues. Just think of the Soviet-type nuclear power plants, the Chernobyl reactors, which we think should be taken off the electricity grids as quickly as possible. Economic pressure will always imply providing assistance to compensate for

the electricity generated by those power plants if they are really closed down. It is not very easy to develop a general Western initiative. It is certainly too big a task for a country like the FRG, because of the amount of money it involves.

[Ellgaard] *Yet at a European or international level it would have to be possible?*

[Toepfer] Well, under the chairmanship of the federal chancellor, the G7 discussed this topic in Munich. We have made great efforts to set up a multilateral fund. Agreement has not yet been achieved with all the parties, but I think that we are on the right track. The EC has also provided money to tackle the problem. We have also tried to take advantage of diplomatic channels to direct attention to those problems. The government has not just given Sunday sermons, but we have confirmed our resolute action at all levels.

Police Arrest Uranium Smuggler, Unable To Find Contraband

AU2411151492 Paris AFP in English
1505 GMT 24 Nov 92

[Text] Berlin, Nov 24 (AFP)—Berlin police have detained a Russian national suspected of smuggling enriched uranium from Russian military stocks, but they have been unable to locate several hundred grams of the material believed hidden in the city.

The state prosecutor's office said the man, identified only as Nikolai B., 39, was arrested November 12 in his apartment in Berlin, where he has been a long-time resident.

They found a large amount of cash in the apartment along with documents explaining how to handle nuclear fuels, it said in a statement.

Monday an alleged accomplice of Nikolai B., identified by prosecutors only as Pavel M., 22, was brought here from Moscow for questioning.

Pavel M., a former Red Army soldier who served in ex-East Germany, told police the two men had smuggled between 500 and 600 grams of enriched uranium into Germany in a leaden box marked with the Soviet emblem and a code number and had buried the box in a Berlin forest.

But police were unable to locate the box when directed to the spot by Pavel M., who was allowed to return to Moscow after questioning, prosecutors said.

A statement issued by the prosecutor's office said it was known that the enriched uranium came from former Soviet military stocks but the prospective buyers were unknown.

Nikolai B. is being held in preventive detention and has refused to cooperate with investigators, it said.

More than 100 cases of trafficking in radioactive materials from the former Soviet bloc have been uncovered by German police in recent months, the police said.

The most recent case was November 3 when police in the northern city of Flensburg arrested a British national suspected of buying plutonium smuggled from eastern Europe.

NETHERLANDS

Environmental Impact of Electric Car Assessed

93BR0020A Rijswijk POLYTECHNISCH WEEKBLAD
in Dutch 24 Sep 92 p 1

[Article by Bart Stam: "Electric Cars Only Worthwhile in the City"]

[Text] The city is the only place where the highly praised electric car will have defeated the petrol-driven car by the year 2000. Outside urban areas, environmental advantages of the so-called "clean" vehicle will hardly have fared any better than those of cars with a three-way catalyzer, according to a report entitled "The Entry of Electricity in the Transport Sector," issued by the Center for Energy Saving and Clean Technology in Delft. The agency appeals for the selective use of electric vehicles in the future.

"It appears from our findings that it will not be possible to use electric vehicles on country roads," said M. Ederman of the Center for Energy Saving and Clean Technology (CE). Together with colleagues Van den Haspel and Haverkorn, he had carried out an in-depth investigation on behalf of the Cooperative of Electricity Producers (SEP) and EnergieNed (the association of energy distribution concerns) on environmental effects and user costs which result from the use of electrically driven road transport. According to the CE, the high costs of electric-driven transport will be a serious hindrance for any large-scale introduction by the turn of the century. In the short term, therefore, the demand for electricity will not increase dramatically. This also means that SEP will not need to build any new power stations.

Many Kilometers

Although private cars are by far the largest group of vehicles, the CE does not only scrutinize the motor car. Trucks, buses and vans are also examined. "The general tenor of our investigation shows that motor vehicles which run on electricity must cover many kilometers in order to be able to prove their environmental advantages," said Elderman. That is because, among other things, the battery system has to cope with a loss in power while the car is standing still. The CE has calculated that an electric car with a high-temperature sodium-sulfur battery loses about 90 watts for every 100 kilometers. The sodium-sulfur (NaS) battery is favored to replace the present lead-acid battery because it has a much higher energy density. This allows a much wider action radius. The electric engine can ensure an approximate 80-percent reduction in acids released from trucks. This is as a result of the high emissions from the present turbo-cooled diesel engines. Emissions from vans are similar to those from private cars.

The Delft agency states that taxis and courier services, in particular, will benefit from the electric engine. Outside

the city the electric car scores less well because the turnpike performance of the gasoline engine shows a higher efficiency than that of the electric motor. In built-up areas, where drivers frequently have to stop and start, the electric car stores its braking energy and uses it for driving. Outside the city this advantage is much smaller because the driving speed is much more constant.

It is noticeable in the investigation that the "hybrid car," under experimentation by German concerns such as BMW and Volkswagen, shows up badly. The hybrid car has both a diesel and an electric engine. Inherent disadvantages of this car are the extra weight of the battery and the space required for the two drive shafts. Electric cars that make use of a current collector or pantograph are more suitable for use in nonurban areas. Such a car attaches to an electric wire placed above the road. This science fiction system is comparable to the trolley.

It looks as though an electric car with a range of 100 kilometers performs best at an annual mileage of 16,000 kilometers, particularly if it remains in the city. Taking into account [increased] emissions of electrical power plants, carbon dioxide emissions from these cars amounts to 60 percent and about half the amount of the nitrogen oxide from a normal car. When the electric car is equipped with a larger battery or spends much of its time outside towns, then these percentages approach those of the combustion engine. The CE comments that 70 percent of driving is done outside the city.

Extra Costs

The hybrid car, however, is cheaper than the other electric cars as a result of its smaller battery. The extra costs are about 18 cents per kilometer, whereas that of electric cars with a large battery amount to almost 25 cents. The CE points out that it is difficult to calculate exactly how much the costs will be in eight years. It is unclear what is going to happen to the present customs duties, value added taxes, and the special luxury tax on private cars. At the same

time, the future price for batteries and electric engines is uncertain. The people at the CE are assuming that the price of the NaS battery will be about 600 guilders per kWh the year 2000, which is four times less than it is now. A price of 380 guilders per kilowatt is estimated for electric engines. The gloomy prediction is that "In all cases the operation deficit per kilometer driven will be large." "Electric cars are far from being cost-effective."

[Box]

Clean or Not

Whether large-scale use of the electric car is good for the environment or not depends to a great extent on how the electricity is produced. In Norway, where there are many hydro-electric power stations, the electric car would produce sulfur (SOx) emissions which are about 96 percent lower, but in the United Kingdom, SOx emissions would be 31 percent higher. In Belgium, NOx (nitrogen) emissions would go down by 70 percent, and in Greece, only 21 percent.

G. Douin, representative of the Association of European Automobile Manufacturers, presented these figures this week at the "Emission 2000" conference in Brussels.

The European Community is attempting to attain a drastic reduction in car emissions by 1 January 1993. By then emissions must be from 70 to 90 percent lower than in 1970. Electric cars are potentially the only vehicles which will be able to carry the ZEV (Zero Emissions Vehicle) designation, as long as the electricity is "clean." But the expectation is that a total changeover to electric cars will take about another 30 years.

According to Prof. A. Morelli, senior lecturer at the Technical University of Turin, the fastest way in which to reduce emissions is simply to have your car regularly serviced and properly tuned. That alone will produce 30 percent lower emissions.

Environmental and Economic Impact of Electric versus Combustion Engine Cars

Private car, 16,000 km/year	CO ₂ emission	NO _x emission	Operational deficit
Electric city car, action radius of 100 km	59%	52%	16
Electric city car, action radius of 200 km	76%	68%	24
Electric car, 50% city use	81%	64%	18
Hybrid car, 50/50 electric/combustion engine	91%	86%	13
Electric car, 50-percent current collector	89%	70%	18

[Caption] The comparison is made with a 100-percent tuned-up combustion engine equipped with a three-way catalyzer. This table only contains CO₂ and NO_x emissions, other emissions were not taken into account. The operational deficit refers to the extra cost of an electric car versus a conventional car, without taking into account value-added taxes, customs duties, and other consumer taxes.

SWEDEN

Stockholm Buses Using Hybrid Gasoline-Electric Engines

93WS0063B Stockholm NY *TEKNIK* in Swedish
24 Sep 92 p 5

[Article by Lars Eriksson: "Gasoline-Powered Electric Buses Cleaner"]

[Text] Greater Stockholm's local traffic authority is investing in gasoline-powered electric buses.

SL [Greater Stockholm Public Transport Company] will order a total of six hybrid buses from Scania and Denmark's DAB.

Denmark's DAB and Saab-Scania will each deliver three hybrid buses to SL. Another six or seven buses may be purchased at a later date.

SL has been carrying out its own development work on this type of bus for several years. The buses that are now being ordered will be based largely on the concept SL has developed.

Two years ago SL rebuilt a battery-powered electric bus and equipped it with a generator and a car engine with a catalytic converter. Tests with the bus showed a nitric oxide emission of 1.15 g/km and a hydrocarbon emission of 0.44 g/km.

"That is 20 times cleaner than the best diesel bus on the market," said Kristian Julen who supervised the hybrid bus project at SL.

He believes the hybrid buses can be 50-60 times cleaner than diesel buses. And he did not consider it unlikely that the buses will eventually be able to meet the tough California requirement of a maximum hydrocarbon emission of 0.04 g/km.

The hybrid bus is equipped with a regular automobile engine which runs a generator. This in turn charges a battery which provides the driving engines with power. When the bus is braked the electric motor also acts as a generator and charges the battery.

The advantage of this system is that the gasoline engine can be turned off in sensitive areas such as Stockholm's inner city. The bus then runs solely on the energy it has stored in the battery.

The electric power in the SL-built hybrid bus consists of two parallel systems with two series-wound motors of 55 kW each.

The coupling gears bring together the power from the two electric motors and also gear down the number of revolutions so the bus can start.

The gasoline engine is an ordinary 2.3-liter 16-valve model from Saab-Scania.

"The life span of this kind of engine will probably be only three years. But that will give us an opportunity to exchange and modernize this component if we want to," Julen commented.

The battery is a relatively expensive nickel cadmium battery made in France. It weighs 660 kg.

"This type of battery, which is handbuilt, costs between 200,000 and 500,000 kronor. We think the price could go down to perhaps a fifth of that with mass production," said Julen.

It is estimated that hybrid buses will be 20-30 percent more expensive than conventional buses.

ABB Develops Environment-Compatible Solid-Fuel Firing System

93MI0049A Wuerzburg *UMWELTMAGAZIN*
in German No 10, Oct 92 pp 76-77

[Text] Western European power generators have only just succeeded in substantially reducing pollutant emissions from industrial furnaces by introducing the latest environmental technology on a massive scale, and now the electricity and heating industry is already facing a new, even greater challenge. Carbon dioxide emissions, whose build-up in the atmosphere is 50 percent responsible for the greenhouse effect, are to be reduced by a quarter of their 1989 level by the year 2005.

Increasing efficiency is the "magic formula" for increasing the yield of useful energy while stabilizing carbon dioxide emissions. The Vartan district heating works in Stockholm has given an impressive demonstration of how this can be done. This plant is the first in the world to operate on the PFBC principle which was developed by ABB in Sweden. The abbreviation stands for "Pressurized Fluidized Bed Combined Cycle."

Pressurized combustion has a large number of advantages over combustion at atmospheric pressure. Firstly, the stringent German emission directives can be complied with in exclusively coal-fired combined cycle power stations, even if they use coal with a high sulfur content and have no downstream flue gas desulfurization facilities; this is because the sulfur is bound in the combustion chamber itself by adding lime.

The nitrogen oxide incidence is kept in check by low combustion temperatures. The most important point, however, is that PFBC power stations have a 20 to 30 percent higher electricity output than conventional boiler plants of the same size, and a 10 to 15 percent lower fuel consumption.

These marked improvements are the result of an efficiency increase of about 40 percent—a value that has previously been achieved only with modern natural gas-fired combined cycle power stations.

Intensive work is already being done to develop the PFBC process further. Gradually increasing the steam pressure and temperature and raising the gas turbine entrance

temperature above its present level of around 830°C may improve efficiency again by as much as 5 percent.

Acid Rain Seen as Main Factor in Epidemic Elk Deaths

93WN0050D Stockholm SVENSKA DAGBLADET
in Swedish 6 Oct 92 p 8

[Unattributed article: "Acid Soil May Cause Elk Death"]

[Text] Goteborg—The high acidity of the fields in Alvsborg is increasingly suspected of being the main reason for the epidemic elk death, which is ravaging primarily there. The lack of copper and selenium could have damaged the elks' immune system and invited an unknown cause of infection, researchers believed.

They are now hunting intensely for this contagious substance, which acts like a virus but which it has not been possible to identify so far.

Completely Apathetic

The pathological picture involves sores in the body's mucous membranes, heavy diarrhea, cloudy eyes and sores in the hide along with hair loss. The animals ultimately become completely apathetic and lose their orientation.

Thanks to increased appropriations the work at the State Institute of Veterinary Medicine in Uppsala has recently intensified in order to solve the mystery of the elk disease, which was detected in southern Alvsborg province in the mid-1980s and which has since spread with explosive speed. Hundreds of elks have fallen ill and died, and several cases have also been determined in neighboring provinces.

Close to Solution

Veterinarian Margareta Steen, Uppsala, who heads the research project for infectious diseases in elks, tells SVENSKA DAGBLADET that their hopes of solving the riddle have grown considerably, and that one has now "gotten incredibly far in a short time."

"If it is really so that the elk disease is connected to the acid soil, well, then there is major social interest in doing something. When a mammal as large as the elk shows these symptoms, there ought to be reason for concern about human beings," she says.

"The number of reports about sick and dead animals is growing. Whether this is due to the number actually increasing or the fact that people, and particularly hunters, have become more observant, we do not know."

Very Acid

So far researchers have picked up 800 dead or sick animals in Alvsborg province and surroundings, and a number of analyses of the animals' internal organs have been carried out.

"Researchers in Lund have determined that Alvsborg province is one of the most acid regions in the whole country," Margareta Steen says. "Since the disease has

spread more like an epidemic here, we have assumed that there could be an underlying reason in the environment."

Comparisons with elks shot 10 years ago shows that the elks today have lower contents of dangerous heavy metals, which is good. But they also have lower contents of substances important to the body, such as copper and selenium.

This could indicate that the acidification has progressed far and that the contents of important metals and minerals have become more mobile and disappeared from the pastureland vegetation, according to Margareta Steen.

"Selenium and copper are important to the immune system, and since we also believe that there is an infection in this picture, the very lack of these substances could be the principal reason."

Contagion Pursued

This contagious substance is now being hunted by the researchers in the laboratory. One has been able to eliminate all known viruses found in cows in the country plus the "crazy cow sickness," which has ravaged England and also spread to Denmark.

"We are looking for a still-unknown contagious substance which acts like a virus, but which we have not been able to define," says Margareta Steen.

Bulls and Cows

In the beginning it was thought that only elk cows were affected.

"But now we have processed the statistical material better and found the anticipated number of bulls. The disease manifests itself at a rather advanced age, which is why we had an overrepresentation of cows, since a greater number of bulls are being shot. But we also found that the disease occurs in calves," says Margareta Steen.

Large Cities Cut Sulfur Dioxide Emissions

93WN0050C Stockholm SVENSKA DAGBLADET
in Swedish 6 Oct 92 p 8

[Unattributed report: "Sulfur Emissions Halved"]

[Text] Between 1988 and 1990 the emissions of sulfur dioxide in Skelleftea, Stockholm, and Goteborg were halved. The sharp reduction is primarily due to reduced use of oil and lower sulfur content in the oil. The total emissions of air-polluting oxides of nitrogen and carbon dioxide were considerable reduced.

In 1990 Skelleftea, Stockholm, and Lysekil were responsible for the highest sulfur emissions, with 5,600, 4,800 and 4,700 tons, respectively, of sulfur dioxide. And yet emissions in the first two municipalities were cut by half in two years. Twenty densely populated and/or industrial municipalities are responsible for not quite half of all of Sweden's emissions of sulfur dioxide and one-third of the oxides of nitrogen.

This was reported by the Central Statistical Bureau, which has surveyed air pollution in the municipalities and provinces. (TT)

Fresh Influx of Straits Water Aiding Baltic

*93WN0050E Stockholm DAGENS NYHETER
in Swedish 10 Oct 92 p 5*

[Article by Henrik Nordh: "Kattegat Water Provides Baltic With Oxygen"]

[Text] The largest influx of Kattegat water into the Baltic Sea since the mid-1970's has taken place over the last few days. The influx appears to be continuing for another few days, and will result in the salinity and oxygen content of the Baltic now improving.

The salt and oxygen contents of the Baltic have deteriorated continuously over the last decades. The last major inflow took place in 1976. Since then, only marginal influxes have taken place, and they have not in any decisive way improved the water situation.

The influx in the last few days became possible since the water level in the Baltic is unusually low, due to many extended high-pressure periods.

This, and the low salinity, has contributed to salt-rich and heavier water from Kattegat being able to "flow into" the Baltic.

Today there is a boundary layer between salt and fresh water. The saltier water lies deeper and is also less oxygen-containing.

The fact that new, fresher water is now coming in is likely to mean that the Baltic water will be stirred up more and that this layer will then disappear.

This is good for the cod, among others, which has declined strongly in the last few years.

The cod has three spawning areas in the Baltic: south of Gotland, outside Gdansk in Poland, and outside Bornholm. In the last two years the only place where successful spawning took place, that is to say where the cod roe was developed, was outside Gotland.

If the salinity level in the water is normal, the cod roe should lie and float on the surface. It does so in the North Sea, but it does not in the Baltic. In the Baltic it sinks instead, because the salinity is so low. In the oxygen-depleted, deeper water the cod eggs cannot develop properly and the stock grows poorly.

In addition to the physical conditions for the cod, the nutritional situation also improves. Small bottom animals such as crayfish, larvae, and worms like it better in water with a higher salt content, as does the greater part of the flora and fauna in the Baltic.

New Pesticides Law Seen Having Wide Impact

*93WN0050B Stockholm DAGENS NYHETER
in Swedish 11 Oct 92 p 5*

[Article by Gosta Karlsson: "Poisons Cut Down on the 'Chopping Block'"]

[Text] Pesticides that do not break down and become harmless in nature within six months or that contain a carcinogen are to be stopped even before they leave the manufacturers' laboratories. The substances will literally be cut down on the chopping block.

The emissions of long-lived and toxic chemical substances are not compatible with the recycling mentality which is now going to pervade all social activity. The environment is to be detoxified and natural resources will be used in a more durable manner than before. To that end the government will submit a special recycling bill at year's end.

In order to clarify to manufacturers, importers and users of pesticides that the talk about a closed-cycle society is serious, the Chemical Inspectorate, KemI, has acquired a new control weapon, which is simply called the chopping block. Or "cutoff criteria"—KemI is increasingly using English as its written language, as a part of its adjustment to the EC.

Stopped at the Start

The rule in Sweden for all pesticides is that the manufacturer/importer must register the product with KemI. A permit is required in order to be allowed to sell a preparation. Until now a manufacturer who wanted to launch a new pesticide on the market had to prove to the authority that tests had been undertaken for example with respect to the agent's potential toxic effect on the environment and health. Subsequently, KemI examined every "finished" preparation, weighed the risks against the usefulness and made a decision.

The chopping block means that pesticides which entail too many environmental or health risks can be stopped at an early stage. The manufacturer informs KemI about what he or she is doing in the laboratory, and if the authority then discovers for example a carcinogenic substance among the ingredients, it can tell the manufacturer: Stop the development of this preparation; you won't get it licensed anyway! KemI saves work and the manufacturer saves research money.

Preparations That Are Halted

A pesticide can be cut off on the chopping block if it meets any of the following criteria:

- **Acute toxicity.** If the substance kills more than half of a group of test animals (rats) with a dose smaller than 25 milligrams per kilo of body weight.
- **Chronic toxicity.** If test animals incur serious damage to the liver and kidneys, for example, when fed a dose of 0.1 milligrams per kilo of body weight and day for at least 12 months.

- **The substance contains a carcinogen.**
- **The reproductive ability.** If a dose of less than 50 milligrams per kilo of body weight and day damages the reproductive ability.
- **Breakdown ability in the environment.** If the pesticide is not broken down within 26 weeks at a temperature of 20 degrees [C] above zero.
- **Bioaccumulation and mobility.** Criteria regarding the preparation's capability of accumulating in the organs of test animals—the content of the substance may not exceed 2,000 times the rate contained in the environment—and regarding how fast the preparation can reach the ground water, for example.

It is sufficient for *one* of these criteria to be present in order for a preparation to be stopped.

Half Approved

The head of the Chemical Inspectorate, Kerstin Niblaeus, tells DAGENS NYHETER that the chopping block has already had and will have a major impact on the work of cleaning up in the jungle of pesticides. The means of control has been used in reevaluating old pesticides, which had the effect of cutting the number of approved agents in half, from 680 to 340.

"And now we have had the companies here and informed them about how we apply the chopping block when new preparations are under way."

Kerstin Niblaeus would like to see the chopping block being applied to chemical products other than pesticides. But that is not possible because the rules for other products do not prescribe an active registration.

"If we were to work with the cutoff method for all chemical products, we would need 6,000 employees here at the inspectorate. We are 100 today. It would also mean that we must either break away from the free trade or get the entire world to go along with us on that idea."

Wherever the chopping block cannot be applied, KemI is working with plans for limitation and gradual elimination of certain indicated substances. For example, plans are now being established for halting the flow of lead, mercury, cadmium, methylene chloride (a carcinogenic paint removal substance), and brominated fireproofing agents. The latter are part of plastic protectors and printed circuit boards for computers and have created a new, major disposal problem.

Ministry Preparing Comprehensive Recycling Law

93WN0050A Stockholm DAGENS NYHETER in Swedish 11 Oct p 8

[Article by Lars-Ingmar Karlsson: "Environment Minister Wants To Change Life-Style"]

[Text] Over the next few months Environment Minister Olof Johansson and his coworkers will draw up the guidelines for "Closed-Cycle Sweden." This is a Sweden which will look very different compared to the one we live in today.

The guiding principle for Closed-Cycle Sweden is not to consume nor to emit more than nature can tolerate. This requires a "new life-style," and the environment minister is firmly committed to convincing the country's citizens and, above all, his colleagues in the government, that we must rethink and live differently than we now do.

Fight Against the Clock

Johansson leads us to suspect that major changes will be needed in the future. He is in a hurry and often tells us that time is running out on us, that it is a fight against the clock.

"There must be no doubt that the closed-cycle society goes far beyond using unbleached filters in the coffee maker, reusing plastic shopping bags, or buying beer in returnable bottles," he said last week at a conference in the Rosenbad government building.

But what does life look like beyond the unbleached coffee filters?

Despite the fact that Olof Johansson very clearly shows the direction, both he and his coworkers at the Environment Ministry are often vague in their descriptions of Closed-Cycle Sweden. A clear picture of what this Sweden could look like and how it would function has not yet begun to appear.

The doubters, who are often found within the circle of the old Social Democratic government, view the talk about the new Sweden as political rhetoric.

"The ideas are diffuse and there is no long-term planning behind them. Recycling is mostly an old Center Party slogan from the 1970s, which was coined when they were pushing for the local society," they say.

Cradle to Grave

If an idea could conceivably exist, it would be approximately what former Environment Minister Birgitta Dahl described as the "cradle-to-grave" thinking. That you need to know how to deal with a used product even before it is manufactured.

The other government members also have questions as to what Johansson wants to create. There is no lack of understanding for the recycling idea itself. Most agree that our wear and tear on nature is too great.

"I think the vagueness is due to it being much harder than anyone thought to convert the recycling idea into practical reality," says a favorably disposed government colleague.

The comments from a totally different direction, from the world of research, are aimed in the same direction.

"The way Olof Johansson has chosen is long and filled with obstacles. It is not the broad way. It is necessary for politicians to dare do it," says Erik Arrhenius, professor for natural resources and a member of the government's Environmental Commission.

It is important for Olof Johansson and the entire Center Party to implement the recycling concepts in reality. The party has now for one year been a part of the four-party

government with responsibility for Sweden's environment. It has often been criticized for not achieving anything, not bringing up the environmental issues to the position where they belong in these times, according to many people.

Several issues, for example the one about packaging, have been plowed under in the ministerial topsoil of studies. There it is to germinate until it is time for the proposed recycling bill.

Credibility at Stake

"The draft bill could be viewed as the basis for the Center's environmental work. It is intended to show how economy and ecology can be combined. It is a historic task for the party," says Hakan Larsson, editor in chief of the Center paper *OSTERSUNDSPOSTEN*.

Thus, the proposed bill must become a document which rises above other government bills. Otherwise the Center risks losing its credibility completely in the environmental sector.

Despite the vagueness in providing clear pictures of Closed-Cycle Sweden, the outlines of what we might expect the future to look like are there.

Olof Johansson has chosen to begin with the products. Emissions from industries are beginning to be brought under control. But there is not enough control over everything that is shipped out through the factory gates. This will be changed in the future.

In the future nothing that is manufactured is to end up outside the closed cycle. When it is used, it will primarily be collected and reused. If that is not possible, it should at least be possible to handle it in a way that does not burden nature with additional toxins, for example by burning it.

This seems simple and self-evident, but the consequences are far from predictable. Most of what we surround ourselves with is created under completely different preconditions than those required by recycling. Environmental poisons are found everywhere: in plastics, cars, refrigerators, computers, batteries, detergents. Even in the food we eat.

The poisons are not just there. Often they are the prerequisite for satisfying our requirements for quality and durability. Until, at any rate, a less dangerous substitute is found.

Cure for Wastefulness

So it is not a minor task that the environment minister and his coworkers have set themselves. And yet this is only a first step. The next item on their list of priorities is to reduce the great waste of the earth's natural resources, such as all the metals which we are constantly digging out of the earth's interior.

Earth, water, and air already contain overly large amounts of poisons. They must be detoxified.

Further down on the list are the really major issues. Transportation, one of the hubs of our modern society, is continually adding carbon dioxide, sulfur and oxides of

nitrogen to our world, substances which can make our globe into a greenhouse at the same time as the soil becomes more acid. The same thing is happening with all the energy in the form of oil and coal which we consume.

But Environment Minister Johansson is likely to take up his mission with great energy. He is an active chairman of the government's Environmental Protection Commission, the think tank of the environment, which is populated by many of the nation's foremost experts in the field of environment. He is well aware, however, that little Sweden cannot achieve very much unless the rest of the world pushes for and makes the right decisions.

A change must therefore take place in our world, something which everyone with insight into environmental issues agrees on. And that change should be noticeable, shouldn't it?

Gunnel Hedman, section head of the Environmental Protection Commission and one of those responsible for the recycling bill, does not really like to agree that life in Closed-Cycle Sweden will appear completely different than today.

Without a Hitch

"It is important to do it right from the beginning. If the producers design their products correctly and see to it that they function in a cycle, we will get a good bit ahead," she says.

But the entire chain of distribution, packaging, returnable systems and waste disposal must be able to work without a hitch. She believes it will be possible with the right means of control.

"But a cycle is not just goods. Society must be planned in a sensible way. The municipalities must provide more information and train those who live in the municipalities.

"They must become more like entrepreneurs. This becomes possible when we shift responsibility for the goods to those who produce them," she says.

Gunnel Hedman's vision of the future includes a less different life than Olof Johansson leads us to suspect when he demands an entirely new lifestyle.

"I do not think that a closed-cycle society has to imply a lot of restrictions. You should not concentrate on the limitations but create possibilities in a different way," says Gunnel Hedman.

The belief that Sweden will not become all that different in the future is not shared by one of industry's more environmentally knowledgeable representatives.

"A future Swedish recycling society will, for example, mean much more intense forestry than we have today. It will be forestry which more resembles today's agriculture," says Lars Bern of ABB [Asea Brown Boveri].

Forest in the Focus

Forestry will become the source of much of the renewable energy which a closed-cycle society demands, he says and gives an example.

"If all Swedish cars were to be fueled by energy from the forest in the form of alcohols, 6 percent of the surface of the entire country would be covered by energy forest. That does not sound like much, but on a map you would see how much that is. A protest by the people would result, the likes of which we have never seen."

At the end of the year, the picture of Closed-Cycle Sweden could clear up. That is when the government's draft bill will come out.

UNITED KINGDOM**Pollution Risk Halts Work on Nuclear Waste Plant**

93WN0128A London *THE DAILY TELEGRAPH*
in English 24 Oct 92 p 9

[Article by Charles Clover]

[Text] A fresh public inquiry into British Nuclear Fuels' new reprocessing plant at Sellafield was demanded last night as it emerged that work on the plant had been halted.

The order to stop development on Thorp may mean that the Government is reviewing whether the £1.85 billion plant should start up at all.

BNFL confirmed that it had been ordered not to allow uranium fuel to contaminate the plant until a new public consultation on pollution levels, expected to begin shortly, is over. The instruction came from the Government's pollution inspectorate.

Contamination would immediately make the Government liable for the £750 million decommissioning costs of the plant, whether the pollution inspectorate approves its pollution emissions or not.

Mr David Maclean, Environment Minister, speaking on Radio Cumbria, defended the decision to stop work on the plant, which employs 850, and said the Government would be "crazy" if it did not review a decision on pollution levels made 15 years ago.

"Tell me how many jobs there would be if the Government or HMIP [the pollution inspectorate] issued a dodgy licence, didn't follow the proper procedures and started up a nuclear plant without checking it properly. Do you think we'd have any jobs anywhere in the county?"

"I don't want anyone outside this county saying 'you're creating a nuclear dustbin'," said Mr Maclean, MP for Penrith and the Border.

Meanwhile, the Treasury is reviewing the economics of the plant and it now looks increasingly likely to become embroiled in the forthcoming energy review announced by Mr Heseltine, President of the Board of Trade.

The plant has been built to reprocess thermal oxide from both AGR and PWR power stations. It was due to open

early next year. The start-up will now be delayed while HM Inspectorate of Pollution tries to decide how much pollution it should be allowed to discharge.

BNFL's application would increase Sellafield's emissions of radioactive material to the sea by six times and into the air by 80 times. The National Radiological Protection Board has estimated that emissions of radioactive krypton 85 gas from the plant could kill up to three people a year worldwide.

BNFL says that while the volume of radioactive emissions from Sellafield will technically go up, the potential dose to those living around the Cumbria plant will go down.

The inspectorate was supposed to have started its statutory eight-week consultation in August. It has already received 15,000 letters complaining about the plant.

Concern about radioactivity is likely to increase next week when two test cases begin in the High Court. They will be brought by families who claim their children's cancers were caused by radiation from Sellafield.

The Irish government and possibly some Scandinavian governments are expected to oppose pollution authorisation by the inspectorate. A million people in Ireland have signed a petition opposing the plant.

Pressure for a second inquiry increased after councillors on Cumbria county council's public safety committee voted in favour of fitting of a £100 million krypton gas removal plant to the Thorp reprocessor.

BNFL has designed the plant so that krypton clean-up equipment can be fitted, but so far has refused to install any. It says that it would take between four and eight years to devise and fit.

The plant was first given the go-ahead at the Windscale inquiry in 1977.

The chairman of British Nuclear Fuels, Mr John Guinness, has appealed to the Government not to allow a second public inquiry and condemned a campaign by environmentalists as "politically motivated" and aimed at shutting down the whole nuclear industry.

"There are no new factors which were not looked at the public inquiry in 1977. A new public inquiry is not going to be cost-effective," he said.

Emissions of krypton gas would be 20 times less than BNFL applied for in 1977 and the risks from the gas were "the same at that from eating a packet of Brazil nuts every year, spending one hour in Cornwall every year or drinking one glass of mineral water per year."

He defended the need for recycling of nuclear fuel, saying it was "a green thing to do. We are urged to recycle cars, glass and so on, we are recycling fuel."

But Bridget Woodman, Greenpeace nuclear campaigner, accused BNFL of a "cynical attempt to avoid having its damaging activities scrutinised."

"Reprocessing is a dead industry and Thorp is a dead end," she said.

If a second inquiry is held it will have the relatively-narrow brief of looking at the pollution authorisation and it would be the Pollution Inspectorate which would be examined in public, not BNFL.

It would be the first time the 1989 Environmental Protection Act has been used to authorise a second public inquiry after protest from interested parties.

Coal Pollution Helping Beat Global Warming

93WN0129A London *THE SUNDAY TELEGRAPH*
in English 25 Oct 92 p 15

[Article by Robert Matthews]

[Text] Pollution produced by coal-fired power stations is protecting Britain from the worst effects of global warming, according to the Meteorological Office.

The finding, based on research into the way atmospheric pollution boosts the temperature of the Earth, looks set to throw into disarray the entire debate about the environmental impact of coal power stations.

Until now attention has focused on the carbon dioxide (CO₂) released when coal is burnt to generate electricity. CO₂ is a powerful "greenhouse gas" which traps the sun's heat and its increasing concentration in the atmosphere has been blamed as the prime cause of global warming.

But coal stations also produce sulphur dioxide (SO₂), an acidic gas which has become most notorious through its

role in producing "acid rain." This has led to coal being seen as "dirty" and prompted power generators to opt for other fuels, particularly gas.

Recently, however, scientists have realised that SO₂ has other, potentially beneficial, environmental effects. First, particles of SO₂ bounce incoming short-wave solar energy back out of the atmosphere, thus reducing the amount of heat reaching the earth's surface.

Secondly, SO₂ particles act as "seeds" on to which water droplets can condense, forming clouds which are better at reflecting the sun's heat back into space.

Some scientists also think that SO₂ may boost the lifetime of such clouds, further off-setting global warming.

According to Professor Tom Wigley, a leading climate expert at the University of East Anglia, just the first of these three effects may have protected the whole northern hemisphere from the worst effects of global warming.

In a report to the United Nations' inter-governmental panel on climate change, the Met Office reduced its predicted temperature rise for the next century by 0.5 degrees Celsius because of the effect of SO₂ and thinning of the ozone layer.

The environmental campaign group Friends of the Earth said the protective abilities of SO₂ had to be balanced against the problems it causes through acid rain.

A spokeswoman said: "Nobody within the scientific community is suggesting that acid rain is not causing damage to buildings and agriculture. One cannot justify creating or exacerbating one environmental problem to reduce another."

END OF

FICHE

DATE FILMED

12 January 1993

7/13